

# MANUFACTURERS' RECORD

A Weekly Southern Industrial and Hardware Newspaper.

VOL. XIV. No. 20.  
WEEKLY.

BALTIMORE, DECEMBER 22, 1888.

\$4.00 A YEAR.  
SINGLE COPIES, 10 CENTS.

**Sole Manufacturers of** **JAS. SMITH & CO.** **Dealers in**  
**EUREKA PACKING** **MANUFACTURERS', MILL and ENGINEERS'**  
Steam, Hydraulic and Locomotive Packing, Works, 413 to 421 Race St., Cor. of Crown.  
OF EVERY DESCRIPTION. Office & Store, 137 Market St., Philadelphia.  
Send for Prices. CIRCULARS AND PRICE-LISTS MAILED UPON APPLICATION

## ELEVATORS

Send for Illustrated Circulars.

**MORSE ELEVATOR WORKS.**  
**MORSE, WILLIAMS & CO.** Successors to  
Manufacturers and Builders of HYDRAULIC STEAM **ELEVATORS** CLARK & MORSE  
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Office: 1105 FRANKFORD AVENUE.  
Works: FRANKFORD AVE., WILDEY & SHACKANAXON STS.  
Branch Office, 108 Liberty Street, NEW YORK. With most approved Safety Devices.  
Dumb-Waiters, Automatic Hatch-Doors, &c.  
**PHILADELPHIA, PA.**  
Boston Office—14 HIGH STREET.

## Report of the AQUEDUCT Commissioners.

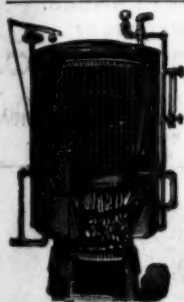
[NEW CROTON AQUEDUCT, NEW YORK.]

AN ELABORATE VOLUME, CONTAINING AUTHORITATIVE TABLES BY THE CHIEF ENG., B. S. CHURCH. JUST ISSUED.

**PLANT** (by actual count from Table 11.)  
Number of Ingersoll Drills used..... 242  
Number of Drills of all other kinds used..... 103  
**PROGRESS** (by actual figures from Table 8.)  
Average weekly progress in best 20 headings that used Ingersoll Drills exclusively (omitting all idle ft. weeks)..... 38.73  
Average weekly progress in best 20 headings that used other drills exclusively (omitting all idle weeks) 31.48  
DIFFERENCE OF 80 PER CENT. IN FAVOR OF INGERSOLL DRILLS.

All headings where Ingersoll Drills were used exclusively have been completed. Send for description of Aqueduct, with Engineers' Tables of Progress and Catalogue. Sent free.

**INGERSOLL ROCK DRILL CO.,**  
10 Park Place, New York City.



## The "GORTON" Boiler.

"PERFECTION IN HOUSE HEATING BY STEAM."

The GORTON BOILER is a Wrought Iron Sectional Tubular Independent Steam Boiler, and rec's no brick work in setting. The GORTON BOILER is made of Best Refined Iron and Steel. Can be used as Self-Feeding or Surface-Burning. It has been four seasons before the public, and received the highest praise of "Press, Architects, Builders and Physicians." Send for Illustrated Circular.

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34 & 36 W. Monroe St., Chicago, Ill.

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SOUTHERN AGENTS FOR  
**The Dodge Patent Wood Split Pulleys.**  
Mill Machinists and Railroad Supplies and Machinery. Carrying car-load lots of assorted sizes in their warehouse in Baltimore.  
Write for price-lists and discounts.



## The Milburn Patent Wood Split Pulleys are the Best in the World.

Cotton Gins, Engines and "Self Packing" Hydraulic Presses, Boilers, Gin Feeders and Condensers.

Write for Illustrated Catalogue and Price List.

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Largest works of the kind in the world.

25 to 60 per cent. more power with same belt than iron pulleys.

**LIGHT, STRONG AND CONVENIENT.**

Every One Guaranteed.

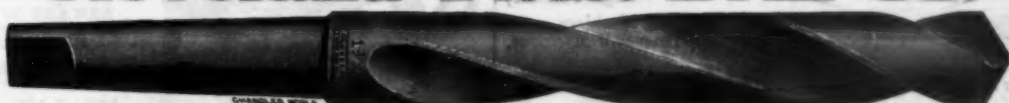
LEONARD & MCCOY, Agents, 118 Liberty Street, New York.  
SMITH & COURTNEY, Agents, Richmond, Va.



Established 1874.

**MANUFACTURERS OF**  
Taper Shank Drills,  
Straight Shank Drills,  
Blacksmith Drills,  
Bitstock Drills,  
Straight Fluted Drills,  
Machine Bit Drills.

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Send for Catalogue.

**OFFICES**—Cor. of Lake & Kirtland Sts., - - Cleveland, O.  
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Write for Discount.

**MANUFACTURERS OF**  
Self-feeding Reamers,  
Expanding Reamers,  
Shell Reamers,  
Stay-bolt Taps,  
Taper Reamers.

**500 TONS** New Rails,  
All Weights.

We have for immediate delivery, at Cincinnati or Portsmouth, Ohio, 500 Tons selected second hand 34 Pound Iron Rails in good condition.  
**ROBINSON & ORR, PITTSBURGH, PA.**

Spikes,  
Splices,  
Switches.

**34 POUNDS.**

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Wheels mounted on horizontal shaft a specialty. Iron Flumes, Penstocks, and everything pertaining to Water Wheel Work. Head Gate Gearing and Apparatus. Rotary Fire Pumps and Friction Gearing. Friction and Improved Clutch Pulleys.

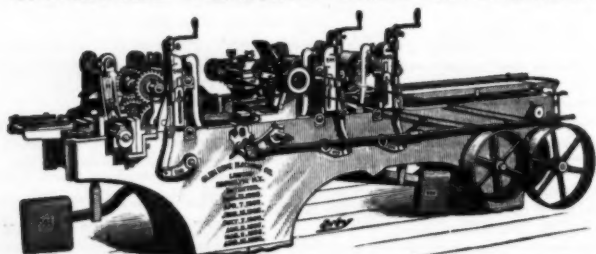
Friction, Clutch and Angle Couplings. Mill Gearing, Shafting and Pulleys. Iron and Brass Castings. Water Wheel Regulators. General and Special Machinery. Send for descriptive Catalogue.

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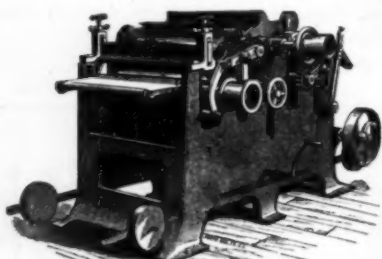
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And a Full Line of

Wood-Working Machinery FOR EVERY PURPOSE.

Correspondence invited regarding Special Machinery.

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SHINGLE, HEADING AND

## STAVE MACHINERY

—AND—

Shingle and Heading SAWS.

Heading Sawing Machines,

Heading Turners,

HEADING JOINTERS,

Veneer Cutting Machines,

Stave Equalizers,

Stave Cutters,

Shingle Jointers,

Shingle Sawing Machines,

Drag Saw Machines,

Handle Machinery.



IMPROVED CROSETT STAVE CUTTER.

Lathes for turning Handles for Brooms, Mops, Forks, Hoes, Axes, Picks, Hammers, Cant Hooks, and for Ball-Bats, Heavy-Stocks, Pike-Poles, Spokes, Etc.

If you want machinery for Staves, Heading, Shingles or Veneer Cutting, send for our catalogue "A." If you want Handle Machinery, send for catalogue "B." Please say where you saw this advertisement.

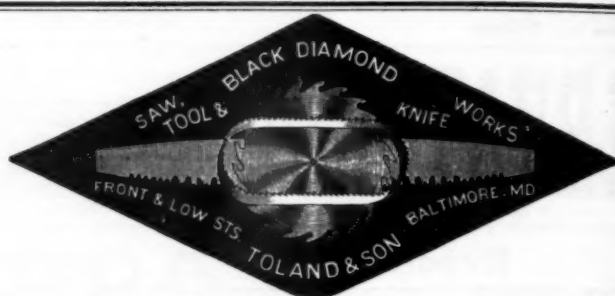
TREVOR & CO., Lockport, N. Y.

Peter Gerlach & Company,

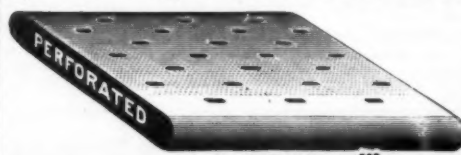
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## ALLIGATOR CHISEL-BIT SAWS,

The Champion Stave, Heading and Shingle Machines. Ice Tools and Mill Supplies. CLEVELAND OHIO.



## Patent Perforated Leather Belting.



GUARANTEED for work on SIDE CUTTERS and the CYLINDERS of PLANERS.

MANUFACTURED BY

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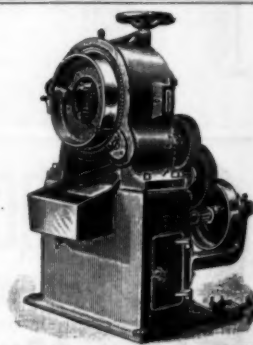
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For hand or power.

A Portable Cutting and Threading Machine, with which one man can with ease thread pipe up to six inches diameter.

NO VISE REQUIRED.

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TRADE MARK I.X.L. MARK.

Pipe Cutting and Threading Machine.

BEWARE OF IMITATIONS. None genuine without our Trade Mark and name. Also

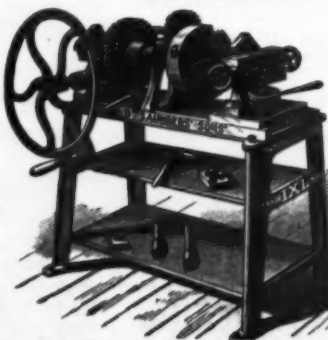
Patent Wheel Pipe Cutter

STEAM AND GAS FITTERS' HAND TOOLS,

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For Pipe Mill Use a Specialty. Send for Catalogue B.

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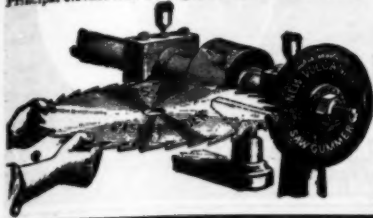


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THE OLDEST AND LARGEST

Rubber Belting with SHEETS METALLIC RUBBER SURFACE.

This company has manufactured the largest Belts made in the world for the Principal elevators at Chicago, Buffalo and New York.

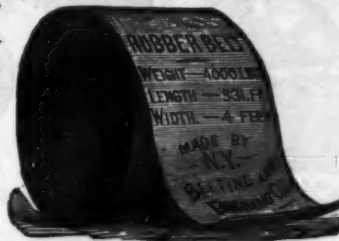


**VULCANITE**  
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**DOES NOT  
CASE HARDEN.**

**DURABLE,  
SAFE AND STRONG.**



**New York Belting and Packing Co.**

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RUBBER "TEST" HOSE, made of Vulcanized Para Rubber and Carbolized Duck.  
Cotton "CABLE" HOSE, Circular, Woven, Seamless, Antiseptic, for the use of Steam and Hand Fire Engines, Force Pumps, Mills, Factories, Steamers and Brewers' use.

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Rubber Matting, Mats, Stair Treads, etc., for Halls, Flooring, Stairs and Iron Stairways, etc.



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ABSOLUTELY  
**FIRE PROOF,**

Light and Cheap.

EASY TO APPLY.

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Those who have used OKO-  
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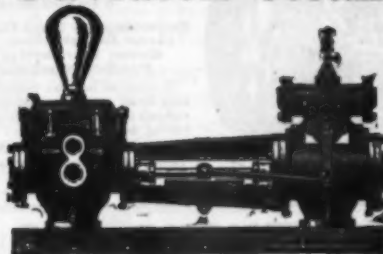


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38 and 40 La Salle Street.  
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**THE M. T. Davidson Steam Pump.**

Simple,  
EFFICIENT,  
Reliable,  
FOR ALL  
PURPOSES  
AND  
DUTIES.



MADE IN  
ALL SIZES,

SINGLE OR  
Duplex.

ALSO  
COMPOUND  
Pumping  
ENGINES.

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**CAMBRIDGEPORT, MASS.**



**Steam Boilers and Engines,**

HEATERS, ECONOMIZERS, RENDERING TANKS,  
STACKS, JACKET KETTLES, AND GENERAL  
PLATE AND SHEET IRON WORK.

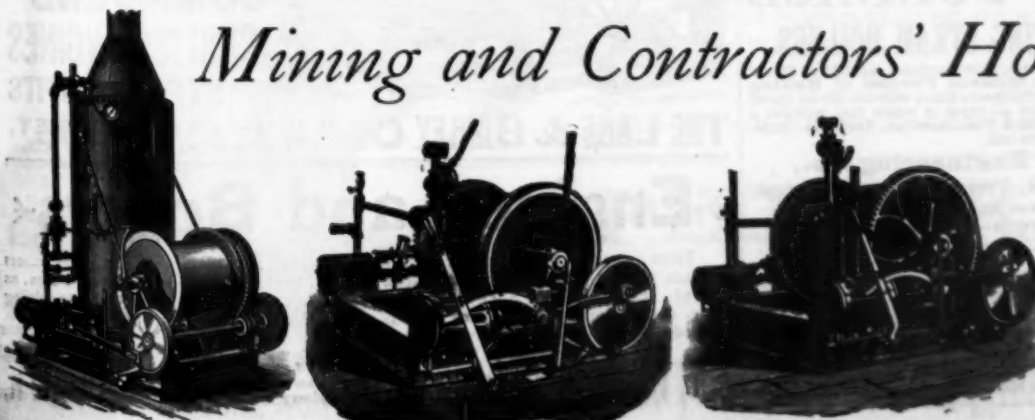
The following Representative Parties in the South are using our Boilers:

Mississippi Mills,	Wesson, Miss.	Crescent Jute Mfg. Co.	New Orleans, La.
Sibley Manufacturing Co.	Augusta, Ga.	Wm. Love, Esq.	Greensboro, N. C.
Tennessee "	Nashville, Tenn.	Dur. Woollen & Woollen Mills,	Durham, N. C.
Felzer "	Felzer, S. C.	Winter Pk. Hotel & Lead Co.,	Winter Park, Fla.
Griffin "	Griffin, Ga.	Hotel Magnolia,	Magnolia, Fla.
Pacquet "	Pacquet, S. C.	Trenton Cotton Mills,	Trenton, Tenn.
Cypress Lumber Co.	Apalachicola, Fla.	Mt. Pleasant Mfg. Co.,	Greensboro, N. C.
Texas Lunatic Asylum,	Austin, Texas.	San Antonio Ice Co.,	San Antonio, Tex.

**Steam Boiler Plants for Mills our Specialty.**

CORRESPONDENCE WITH MILL OWNERS AND ARCHITECTS SOLICITED.

*Mining and Contractors' Hoisting Engines,*



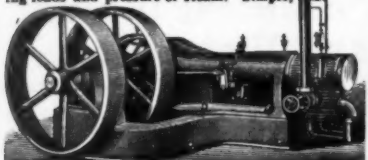
DOUBLE OR SINGLE CYLINDERS,  
DOUBLE OR SINGLE DRUMS,  
STRAIGHT OR CONE SHAPED,  
SMOOTH OR GROOVED FOR ROPE,  
FAST DRUMS with REVERSE LINK,  
FRICTION DRUMS without LINK,  
FRICTION DRUMS WITH LINK,  
DOUBLE OR SINGLE GEAR.

Send for Catalogue G.

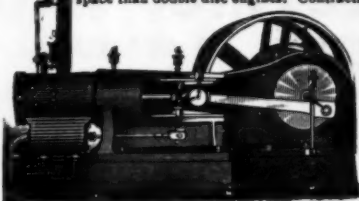


**BECK AUTOMATIC ENGINE.**

For Electric Light, Flour, Cotton, Woolen and Rolling Mill Service and all other purposes requiring power. Economical in Steam Consumption. Does not race. Speed constant under varying loads and pressure of steam. Simple,



and durable in construction. Requires no more space than double disc engines. Contracts



taken for complete steam plants, including boilers and all connections, masonry and erection. All work guaranteed. Send for catalogue and full particulars. Also builders of Portable, Vertical and Stationary Engines. Boilers of all styles, and Saw Mills. Address **TAYLOR MANTO. CO., Chambersburg, Pa.**

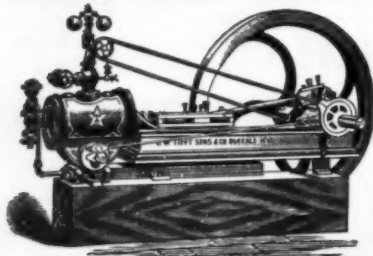
—) FOR THE LOWEST-PRICED FIRST-CLASS (—  
**ENGINES & BOILERS**

ADDRESS

**GEO. W. TIFFT, SONS & CO.**  
**BUFFALO, N. Y.**

5 to 500 H. P. Special Stock Sizes 5 to 50 H. P., both Stationary and Semi-Portable.

A few good Second-Hand Engines and Boilers are for sale at an astonishingly low figure. Must be sold to make room for stock. Correspondence solicited. Mention this paper.

**McIntosh, Seymour & Co., Auburn, N. Y.****Automatic Cut-off Engines**

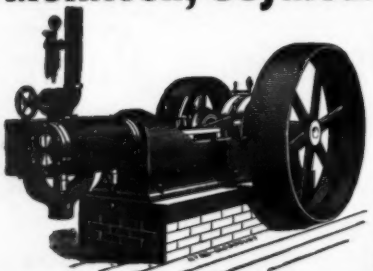
5 to 300 Horse Power.

Economy in Fuel Consumption,  
Close Regulation,  
Great Durability and Simplicity,  
Perfect Workmanship and Design.

Unrivalled in these qualities, our engines are suitable for all purposes, especially where high speed and difficult service are required, as in electric-light plants, rolling mills, etc. Send for Illustrated Catalogue.

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**SKINNER ENGINE CO., ERIE, PA.**

Awarded **THREE GOLD MEDALS**  
by the World's Industrial and Cotton Centennial Exposition of New Orleans, La.

**MORE THAN 2700 IN USE.**

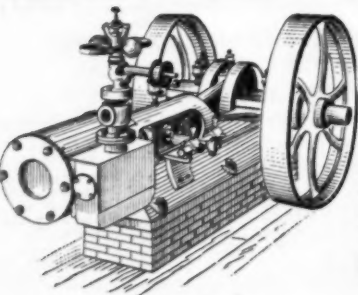
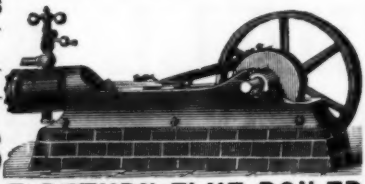
Manufacturers of **PORTABLE & STATIONARY**

**ENGINES and BOILERS**

Including the Well Known **SKINNER PORTABLE RETURN FLUE BOILER**

SEND FOR ILLUSTRATED CATALOGUE AND PRICES.

EASTERN OFFICE. C. R. VINCENT & CO., Room No. 62, 15 Cortlandt St., NEW YORK.

**McLAUGHLIN'S Center Crank Engine**

These Engines are adapted for high speed, and made in sizes from 8 to 125-Horse Power, and fitted with automatic cut-off. The Bed is cast in one piece. The cylinder and steam chest separate. The cheapest machine for the quality in the market.

**Geo. McLaughlin Mfg. Co.**

Send for circular and information.

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**JARVIS PATENT FURNACE****FOR SETTING STEAM BOILERS.**

Economy of Fuel, with increased capacity of Steam Power. Like the Siemens Process of Making Steel, it utilizes the waste gases with hot air on top of the fire. Will burn all kinds of waste fuel without a blast, including Black Coal, Sawdust, Logwood Chips, &c. Send for Circulars.

**Jarvis Engineering Co.,**

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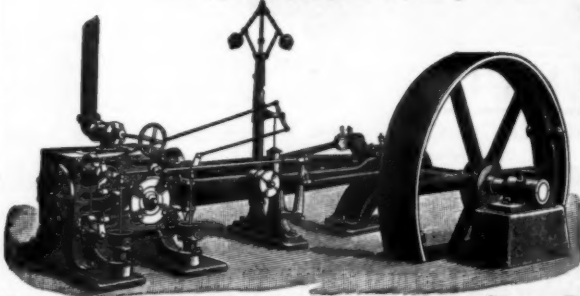


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Anniston Mfg. Co., Anniston Ala.  
J. F. King Mfg. Co., Augusta, Ga.  
Rose Mining Co., Charleston, S. C.  
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Maryland Electric Light Co., Baltimore, Md.  
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Bacon Fertilizing Co., Baltimore, Md.  
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Graniteville Mfg. Co., Graniteville, S. C.  
Charleston Bagging Co., Charleston, S. C.  
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**ECONOMY** **DURABILITY**  
**BALL AUTOMATIC CUT OFF ENGINE.**  
**RELIABILITY** **SIMPLICITY**  
**BALL ENGINE CO. ERIE PA.**  
THE MOST PERFECT GOVERNING EVER OBTAINED

ECLIPSE CORLISS ENGINES.

**Frick Company, Engineers, Builders,**  
**—WAYNESBORO, PA.—**

40 to 1,000 H. P.  
Made.

Condensing, Non-Condensing & Compound.  
Send for Corliss Circular.

Ice-Making and Refrigerating Machinery.  
Send or Ice-Machine Circular.

Special Automatic Electric Light Engines, Steam Boilers, Traction and Portable Engines, Saw Mills. Send for our General Catalogue.

**Russell & Co.**

MASSILLON, OHIO,

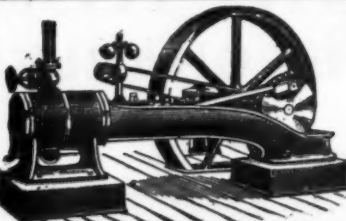
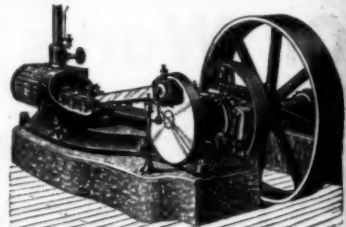
BUILDERS OF

**AUTOMATIC ENGINES**

BOILERS, ETC.

Complete Power Plants Furnished and Erected.

SEND FOR CATALOGUE.

**WRIGHT & ADAMS CO.**  
**QUINCY, ILL.**

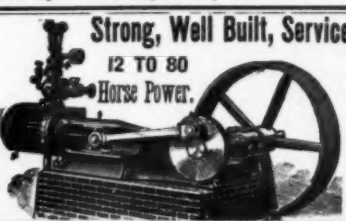
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**Automatic Cut-Off ENGINES**

Double Drum Derrick Engines. Single Drum Reversing Engines, suitable for Mines and Rapid Hoisting.

Correspondence respectfully solicited.

Catalogue sent on application.



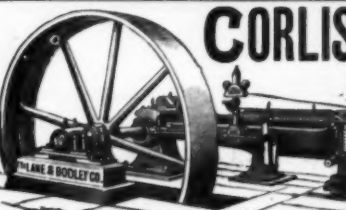
Strong, Well Built, Serviceable

12 TO 80  
Horse Power.

**STEAM ENGINES**

Adapted to Heavy, Continuous Work. Every Engine tested under full load. For descriptive circulars, address

**Chandler & Taylor, Indianapolis, Ind.**

**CORLISS THE LANE & BODLEY CO.**

HIGH PRESSURE, CONDENSING and

**COMPOUND****CORLISS ENGINES**

AND STEAM OUTFITS

**THE LANE & BODLEY CO., 2 to 44 JOHN STREET, CINCINNATI, O.**

**Engines and Boilers**

From 1 to 500 horse-power; Portable and Stationary, Horizontal and Vertical. Boilers of plain tubular type, locomotive fire-box pattern, vertical and two-flue, steel or iron, as desired. Engines, Plain Slide Valve or Automatic Cut-Off. Send for catalogue, giving exact requirements, that you may obtain our estimate. Freight paid your station if desired.

**W. E. DREW, Agent,**

**S. C. FORSAITH MACHINE CO.** Machinery and General Machinery Dealers, **Manchester, N. H.**



# THE LIST OF SALES OF THE WESTINGHOUSE ENGINES, COMPOUND, STANDARD AND JUNIOR, FOR THE MONTH OF OCTOBER, 1888,

Is too long to publish in *extenso* as an advertisement. Orders were received on eighteen working days, the five heaviest days yielding respectively 16, 11, 10, 8 and 7 engines each.

**Total, Eighty-Six Engines, Aggregating 3,310 Horse-Power.**

Sales for August, September and October were over 200 Engines of all types, aggregating nearly 10,000 horse-power.

Note in connection with the above exhibit, that our current advertising expenses for 1888 are about one-half that of any preceding year.

## WHY IS IT?



### Continental Boiler Scale Preventive.



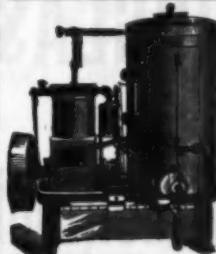
Positively prevents and removes scale in steam boilers without acting on any of the metals. A real necessity for Southern steam users. Saves fuel, repairs and trouble, and doubles the life of the boiler. Sold on its merits, and satisfaction guaranteed or no pay. Write for sample.

The GLEASON  
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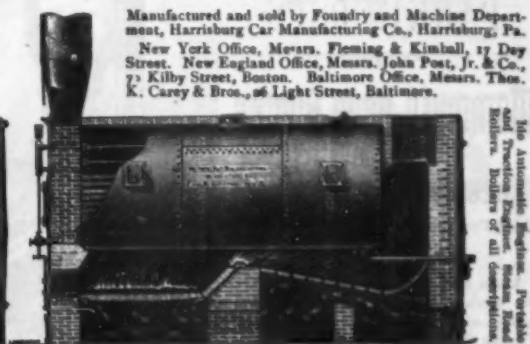
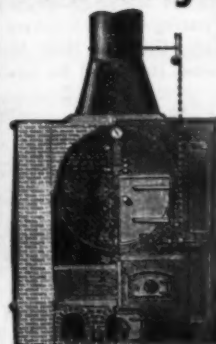


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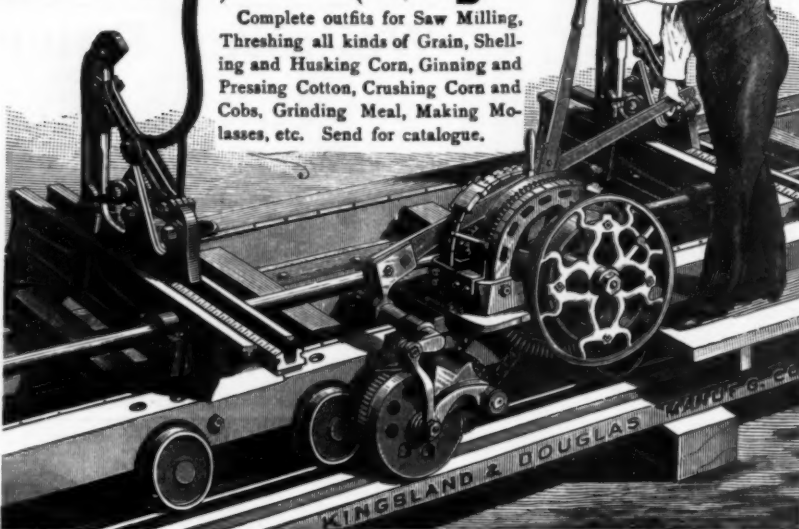
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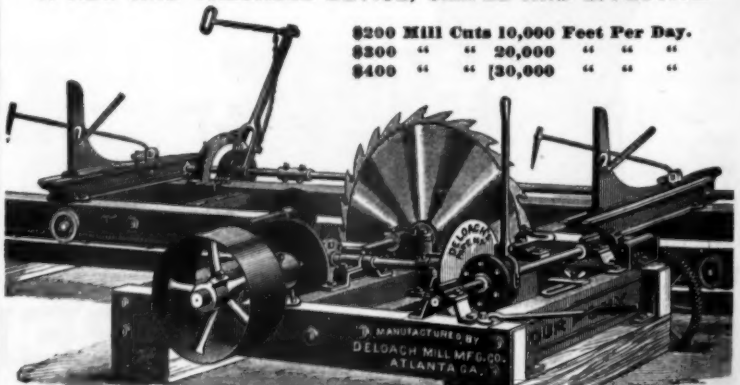
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<b>\$400</b>	"	"	<b>30,000</b>	"	"	"



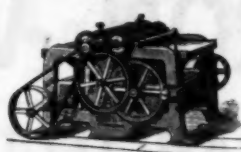
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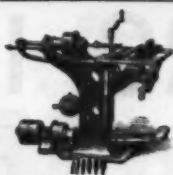




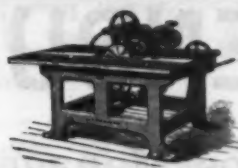
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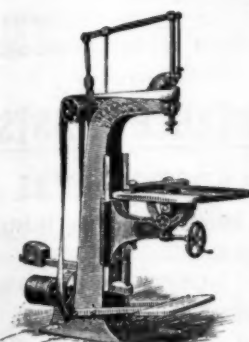
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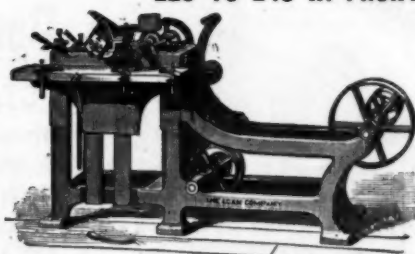
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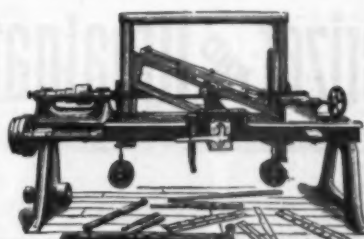


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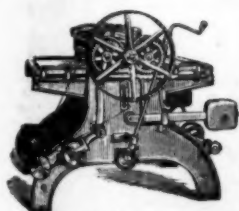
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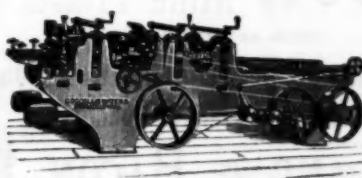
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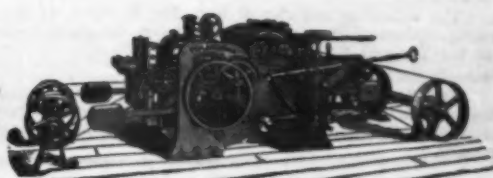
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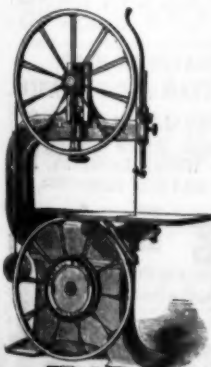
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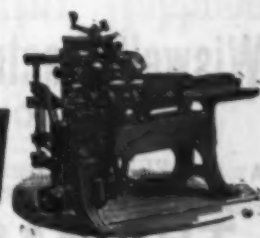
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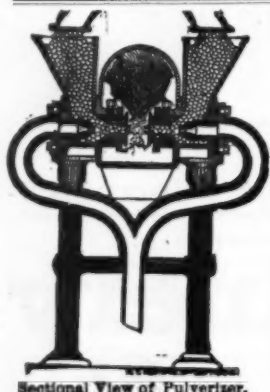


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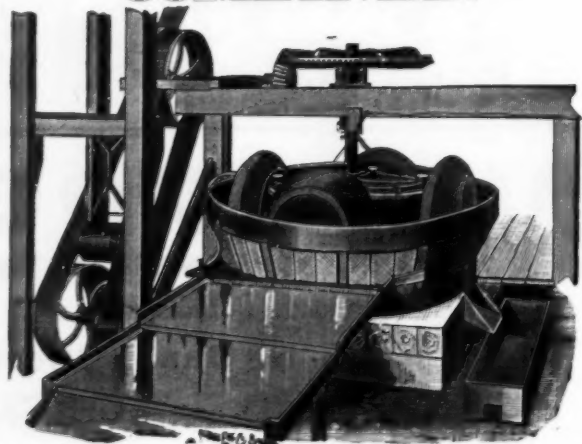
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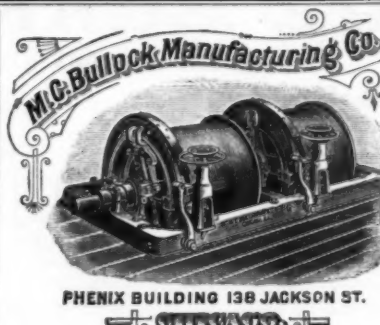
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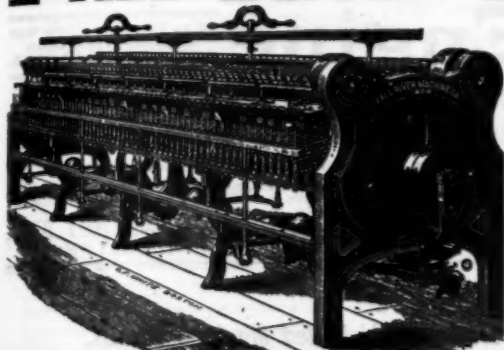
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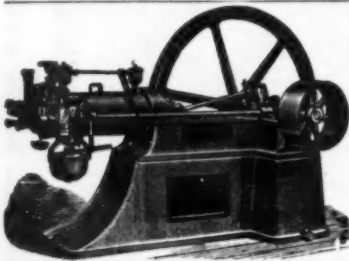
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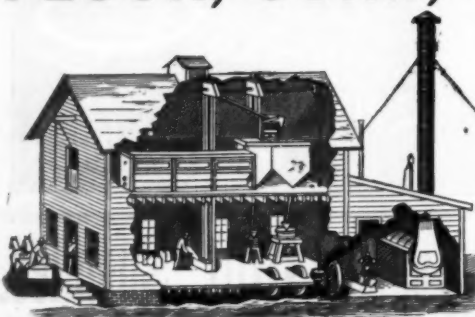
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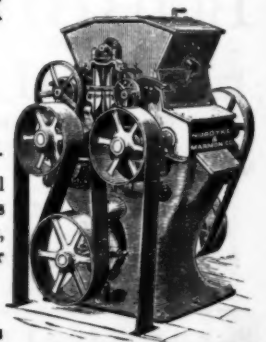
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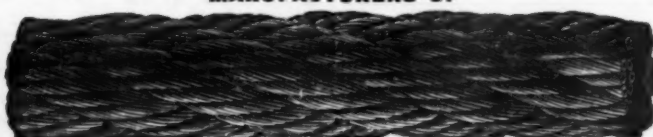


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# Manufacturers' Record.

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MANUFACTURERS' RECORD CO.

R. H. EDMONDS, EDITOR AND MANAGER.

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BALTIMORE, DECEMBER 22, 1888.

IF you contemplate starting a new enterprise of any kind, whether it be a railroad, an iron furnace, a rolling mill, a machine shop or foundry electric light, water or gas works, saw mill, planing mill, furniture factory, fertilizer factory, cotton mill, or anything else requiring machinery of any description, send particulars to the MANUFACTURERS' RECORD. A postal card giving character of enterprise and kind of machinery wanted will be all that is needed. It will prove of great benefit to you.

If you desire to purchase machinery of any kind consult our advertising columns, and if you cannot find just what you wish, send us particulars as to the kind of machinery needed. We will make your wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. You will thus get all information desired as to prices, etc.

## Production of Pig Iron in 1888.

The American Manufacturer, of Pittsburgh, estimates the total production of iron in this country during 1888, as compared with 1887, as follows:

	Actual production, 1887.	Estimated production, 1888.
Fuel.	Gross tons.	Gross tons.
Charcoal .....	515,234	495,312
Anthracite .....	2,087,847	1,574,988
Bituminous .....	3,813,667	3,584,556
Total .....	6,417,748	5,955,856

This indicates a decline in total production in 1888 as compared with 1887 of 461,252 tons, or about 7 per cent. In charcoal iron there has been a reduction of 19,882 tons, or about 4 per cent. In anthracite iron a reduction of 512,859 tons, or about 20 per cent., while bituminous iron production shows an increase of 70,849 tons, or less than 2 per cent.

THE American Machinist in its last issue makes a very strong argument in favor of cheaper letter postage, and shows that it would not simply benefit business houses using a great many stamps as some claim, but that all classes would receive equal benefits. We believe that it would be an advantage to the country at large, not only to reduce letter postage, but also the postage on newspapers and merchandise just as rapidly as the revenues of the department justify it.

BRADSTREET'S has been making an investigation as to the probable yield of cotton for the present crop year, and estimates that the returns received indicate a yield of about 6,800,000 bales, or 2 to 3 per cent. less than last year.

## The Lesson of Augusta.

Before this reaches our readers the National Exposition at Augusta will have closed its doors, and the many varied and valuable exhibits that covered the seven acres of floor in the beautiful building will have been taken down and packed for shipment to all parts of the country. The MANUFACTURERS' RECORD has watched this undertaking from its inception to its conclusion with unabated interest, because of the broadness of the idea, the courage and enterprise of the people who determined to engage in the enterprise, the boldness of the plans they adopted, and the energy they displayed in carrying them forward to completion. Undaunted by the terrible flood that swept over the greater part of their city, destroying their streets and a great deal of valuable property inflicting a direct loss of a \$1,000,000 and an indirect one nearly twice as great, the people of Augusta lost none of their enthusiasm, but applied themselves the more zealously to preparing for their Exposition, at the same time doing everything required to remove all evidences of the disastrous inundation. All who have visited Augusta during the past two months concur in extolling the courageous spirit of its people. They have risen superior to disaster, and have given a grander exposition than they promised. The record they have made will be an encouragement and an inspiration to all afflicted communities. They have taught by example the sublime lesson, that faith, hope, courage, energy and unity can overcome the worst calamities that can visit a city, and place it on the road to new and increasing prosperity. Because of what it has achieved under circumstances most adverse, as well as because of what nature and man have made it, Augusta will increase in population, in diversity of industries and in wealth far more rapidly henceforth than she has ever done in her history. And so it will be with all cities that rise superior to adversity through the courage and public spirit of their citizens.

THE Charleston News & Courier, referring to the recent comments in the MANUFACTURERS' RECORD about the suits that were brought against manufacturers in that city, says that "the sentiment of the community is so unmistakably in favor of enlarging and improving local manufactures, that there is no danger now that the whims or fancies of a few persons will even threaten to stand in the way of the city's growth. The law is against them and so is the good of the community." The MANUFACTURERS' RECORD is glad to make this statement public, but the News & Courier is in error in saying that we were "entirely mistaken regarding the attitude of Charleston towards manufactures," for our comments were distinctly and directly against the class of people who were instituting these suits and not against the business men generally.

## The Montgomery Convention.

The assembly at Montgomery, Alabama, last week was notable for the number attending it, the representative character of the delegates, the harmony that marked their proceedings and the practical results reached. This convention was the outcome of a correspondence begun by Hon. John T. Patrick, commissioner of immigration of North Carolina, with Hon. F. B. Chilton, secretary of the immigration commission of Texas. These gentlemen saw that while their respective endeavors to induce immigration from the North were resulting well for their States, yet a greater impetus would be given to the movement if all the South would unite with them upon some well defined plan of operations for spreading information about Southern resources and attractions through the North and West. The cordial acceptance of their proposition by governors and State officials shows that the time had arrived for the inauguration of their plan. The report of the committee on credentials gave the names of authorized delegates from Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Kentucky, Tennessee, Arkansas, Louisiana, Texas, Missouri and New Mexico.

Some of these States were represented by many delegates, others by but one, but, that there might be perfect fairness of action, the rule was adopted by unanimous vote that every State delegation should be counted on the basis of its representation in Congress. By this arrangement Texas, represented by 12 delegates, had 13 votes; Missouri, with but one representative, had 16 votes, while Alabama, with her 120 delegates, had but 10 votes. This fair plan of representation was due to the courtesy of the Alabama delegation, whose numerical strength was great enough to have defeated the proposition had its members been so inclined. We call attention to this because it is an illustration of the spirit that ruled the occasion.

Before the permanent organization was effected there was an earnest and simple-worded prayer for divine guidance offered by Rev. Dr. Wharton, of Montgomery, after which Colonel Chilton, of Texas, introduced Hon. Jno. D. Roquemore, of Montgomery, as temporary chairman of the convention. That gentleman's speech of welcome gave the keynote for the work that was afterwards done. He began with the statement that "the movement of men from one place to another, singly and in families, in tribes and communities, is now recognized as an orderly and constant impulse of the human family," and that it has always existed. This immigration movement "is now so defined and regular, so spontaneous and functional, so independent of the influences of sudden commotion, that it must be regarded as a necessary

condition of human advancement—a process of evolution." Referring to the long continuance of the westward flow of emigrants, and that the South had made no organized persistent effort to divert the stream from the West to the South, or to acquaint the people of other sections with the opportunities the South offered to the thrifty and enterprising, he then spoke of what measures were necessary to produce a rapid and voluminous increase of population through immigration. This part of the address was so suggestive and pertinent that we give it in full.

Cheap transportation, hospitable reception and treatment, specific and reliable information, protection from imposters and cormorants, are indispensable pre-requisites to any successful plan for securing immigration. The man seeking a home in the South must have a low rate of fare to reach it; he must be kindly met and entertained with friendly regard; he must be informed on all the details upon which a man moving into a new country wishes information, with truth and candor; he must not be preyed upon, but protected from the craft of the designing and mercenary.

The growth of the volume of emigration from Europe to America, and from the East to the West, is largely due to the facility and cheapness of transportation, to good neighborhood, to reliability and detail of information and to the protection vouchsafed to the emigrant.

But not these alone will bring to our midst the wealth of bone and brawn and brain. We must offer to such as are inclined to become settlers in our midst schools for their children and churches for their worship. I trust I may be pardoned for saying in this presence that the wise and patriotic members of the General Assembly of Alabama, now in session, have voted a large increase of the public school fund of the State. And this same body is seeking a way to still more largely increase this fund. God speed them in the work! Nor yet are these sufficient. Liberty of conscience and freedom of speech must be, at all times and under all circumstances, not only tolerated, but freely conceded and firmly upheld. No man worth the having would consent to surrender his right to think and act according to the dictates of his own conscience as a condition of his residence anywhere. It is surprising to us, who know the advantages afforded so abundantly in the South for comfortable life and profitable business, that this section is not sought out by the great moving mass of humanity hunting homes. The soil is fertile, the climate genial, the society enlightened, well organized and orderly, the people hospitable and law-abiding, the laws impartial and so framed as to afford the largest personal liberty consistent with public and private rights. Then, why is it that the West is preferred to the South by the emigrant? It is for you to discern the reason and find the means to overcome it. The census report of 1880 shows in the fifteen Southern States, beginning with Maryland, an aggregate population of only 18,000,000 in round numbers, with a foreign born population of only 600,000, a fraction over three per cent. Alabama, Mississippi, North Carolina, South Carolina, Georgia and Virginia all show less than one per cent. of foreign born population, while Colorado has over 30 per cent. of its population foreign-born, Kansas about 12 per cent., Nebraska over 21 per cent. The same report places the percentage of increase of population in these fifteen Southern States from 1870 to 1880 at figures which average 37 per cent., while the Territories of Arizona, Dakota, Idaho, Washington and Wyoming, and the States of Nebraska, Kansas and Colorado, eight in all,



show an average increase of population in the decade named of over 307 per cent.

The significance of the facts taught by these figures must not be disregarded. Let us study the causes which have led the sturdy, hardy young blood of our own country and of Europe to settle in the harsh climate of the Northwest where to sustain life in winter often becomes a serious problem, passing by unnoticed our more productive lands and a climate unsurpassed by any in the world. If the South was as judiciously and persistently brought to public notice as Dakota, for example, and the same facility for selecting lands and settling here was offered to emigrants as are afforded there, who can doubt that the home seeker would prefer the South?

Other addresses were made and the routine necessary to the organization of the convention was completed, after which a recess was taken. Upon reassembling, Dr. W. W. Peeples, of Mississippi, was made permanent president; John T. Patrick, of North Carolina, chief secretary, with two assistants, and vice presidents, one for every State represented were appointed. Thus equipped the convention settled down to work and closed its labors Thursday evening. What it did is embodied in the following resolutions, which were enthusiastically adopted:

Whereas, It is believed by many citizens of the United States that the Southern States do not desire to have immigration from the Northern, New England and Northwestern States and Territories; therefore, be it

Resolved, By this Southern Interstate Immigration Convention, assembled this day in the city of Montgomery, Alabama, composed of officials and prominent citizens of the several Southern States and Territories, that we extend to all law-abiding citizens of every religious faith or political party an earnest and hearty invitation to make their home in some one of the several States and Territories here represented in this convention.

Resolved, That the South offers grander and greater opportunities and inducements to labor and capital than any other country on the face of the globe. That there are yet found within the borders of the States here represented in this convention, a larger acreage of unoccupied agricultural and horticultural lands open to settlement and occupancy at a less price per acre than can be found in any other portion of the United States. That in her mineral and timber resources she is destined to lead the whole world. That the South needs immigration, and the kind of immigration wanted is that which is intelligent and energetic, men who are capable of producing something in addition to their immediate necessities, and who will thus add to the intrinsic value of her lands and other property by cultivating and improving them. That the South wants more mechanics, more laborers and men who have energy and enterprise to utilize and develop her wonderful natural resources, who will build and maintain factories and mills, manufacture and handle her enormous and diversified products, build railroads, improve her immense water power and develop her mineral resources.

Resolved, That we, the members of this convention, pledge ourselves individually and collectively to support and encourage any and every proper effort that may be inaugurated by the Southern Inter State Immigration Bureau to make known our resources and to extend to the world our hearty invitation to settle among us.

Mr. Huleine, of Kentucky, offered the following resolution:

Resolved, That this convention earnestly recommend the formation of commercial

clubs in each city or town in every Southern State, and that the young men of the South be especially charged with the organization of these clubs. Their object shall be to urge and advertise the commercial advantages and opportunities for new increased industries in their respective localities.

Several good results will follow from the work of this convention. A strong, harmonious, practical association has been organized, with an executive committee of experienced workers to manage its affairs. Through them such favorable arrangements as the transportation lines are permitted to make under the Inter-State law will be perfected in the interest of immigration. It is probable also that one or more extensive expositions of Southern resources and progress will be held at the North in the centers of population, so that its people can have brought to their attention the wonderful opportunities to be found in the South. The convention did excellent work. The MANUFACTURERS' RECORD extends hearty congratulations to all its members.

#### Little Rock and Its Advantages

The letter of our special correspondent from Little Rock will doubtless open the eyes of many people who have not studied the resources of Arkansas. Few realize the wealth of its mineral resources, its great timber supply, its fertile soil and the salubrity of the climate of a large part of the State. The facts which are given, showing the advantages of Little Rock, the vast mineral wealth that surrounds it, the extent of its industrial and trade development, are of more than usual interest. That Arkansas is destined to take very high rank in the sisterhood of States admits of no questioning. The developments already made demonstrate that in mineral resources she has been abundantly blessed. Her soil is fertile, and produces large yields of cotton, the cereals, fruits of almost every variety, &c., while her forests are seemingly almost inexhaustible under any wise management. The progress of the State is well typified in Little Rock, the center of the developments that are tending to add largely to the wealth and population of the whole State. The statements made in the letter in question are worthy of careful consideration, for they are of more than usual interest.

THE Southern Pine Co., which was organized at Savannah last week, is designed to unite the lumber men of the South Atlantic coast with a view to advancing prices of yellow pine. It is claimed that selling prices have for a long time been unprofitable, and that there have been troubles in the trade in the way of classification, &c., which can only be remedied by a union of the chief lumber men.

THE city council of Cleveland, Tenn., invites bids from any one to establish a system of water works at that place.

#### Judge Kelley's Prediction of Southern Growth.

Hon. Wm. D. Kelley, whose deep interest in the South's progress is well known, and whose letters upon the resources of this section, published in the MANUFACTURERS' RECORD a year or more ago, attracted such wide attention, has furnished us with a copy of a letter written to a Southern farmer who had asked for Judge Kelley's views upon the future of the agricultural interests of that section under the new administration.

HOUSE OF REPRESENTATIVES, U. S. }  
WASHINGTON, D. C., Dec. 11, 1888. }  
MR. T. O. WICKER, Sandersville, Ga.:

Dear Sir—I have read your favor of the 8th, which has just come to hand, with great interest, and thank you for the opportunity it gives me to assure you and all the people of the Southern States that the action of the 51st Congress and of General Harrison's administration will tend to "harmonize the differences between the two sections," and will not, as you seem to fear it may, "be oppressive and tend to widen the breach that has unfortunately existed for years."

General Harrison said more than once during the campaign that he knew the South only as a part of his country, and that as such her affairs should be administered under laws applicable to every part of the country. I do not profess to give his precise words, but I do express their purport distinctly, and I venture the prediction, with absolute confidence in its fulfillment, that the material progress of the Southern people and States will during the coming four years largely exceed the surprising development of her wealth of natural resources and the energy disclosed by her people in the manufacture of their native raw materials.

You say, "we farmers of the South feel more anxious and a greater interest in this matter than any other class, from the fact that we are more directly interested. You are well aware, I presume, that it has been a struggle for the farmers of the South for the last decade or more to make a support for themselves and families, and it has made us quite despondent and produced a general apathy among the people." In connection with, and in response to, these suggestions, I take the liberty of sending you a copy of "The Old South and the New," a little volume in which are collected a series of letters written by me during 1886-87. If you will do me the honor to read this little book, you will find evidence that since I first visited the South, in May, 1867, I have continued to deplore the hard lives endured by the farmers of the South, and endeavored to show them that their poverty and discontent arose from their own mismanagement in not diversifying their employments by mining, smelting and manufacturing, whereby those engaged in one pursuit would be purchasers of the articles produced by others.

This policy would create in your midst cities like Atlanta, Augusta, Birmingham, Chattanooga, Anniston, South Pittsburg and others I might name, each of which is a market for farm products. To encourage and help forward this system of diversifying the employments and improving the financial and social condition of the people of the South by just and equal tariff laws—laws that will give preference to American coal, ore and labor, instead of bestowing privileges in our home markets upon the miners and manufacturers of foreign countries—will be the policy of Congress and the administration.

If we do not manufacture for ourselves we must all get our living by farming, and thus intensify the distress of the entire farming community.

I hope to hear from you on this point when you shall have read "The Old South and the New." Renewing my prediction

that the progress of the South in wealth, intelligence and development will be immeasurably greater during the four years from the fourth of next March under a Republican protectionist administration than it has been under a Democratic free trade administration, though this has been surprisingly great, I remain, yours very truly,

WM. D. KELLEY.

MANY of our readers will be pleased to see the familiar name of G. B. West as our Birmingham correspondent once more. Mr. West is widely known as one of the ablest journalists of the South, and he never writes anything that is not well worth reading. His former letters to the MANUFACTURERS' RECORD were widely copied and commanded great attention. The influence which they exerted in making Birmingham widely known and in attracting attention to the wonderful resources of the surrounding country was remarkably great.

#### Soap Mine.

A few months ago a Georgia correspondent of the MANUFACTURERS' RECORD reported that a mine of good soap had been discovered in that State, and that the soap seemed well adapted for all ordinary purposes. A Pittsburgh subscriber wrote that he could not quite believe the truth of any reported soap mine, but the Enterprise, of Virginia City, Nev., tells of soap mines in that State, and says:

In Nevada are several deposits of mineral soap. One of these has been worked for three or four years. The soap is sometimes made up into cakes as it comes from the mine, but usually it is toned down by admixture with various other soaps. In Dakota and Wyoming are also deposits of natural soap. In regions where soda, borax and mineral oils abound, it is only necessary to bring these ingredients together and a soap mine is the result. Hot springs assist very materially in uniting and concentrating the materials provided by nature. The soap found about hot springs is therefore generally harder and more perfect than that produced in the dry way in and about the basins of extinct lakes. The waters of Owens and Mono lakes are so thoroughly saturated with borax and soda in solution that the addition of any oleaginous matter produces soap. The waters of Mono lake produce myriads of grubs (which after a time becomes flies), which are washed ashore, and in some places cover beaches a foot or two in depth. The oily matter contained in the grubs or flies uniting with the alkali in the water of the lake forms a deposit of soap an inch or two in thickness each year. Thus in the course of ages a deposit of natural soap of great depth has built up on the east side of the alkali lakes where the worms are stranded—the prevailing winds being from the west.

OUR Louisville letter will be found to be of unusual interest this week. The report of Prof. Orton shows that the promise of natural gas for that city in the near future is based on a good foundation, and this has aroused a good deal of interest, which will doubtless culminate in some big movements. This letter also contains some interesting facts about prospective iron and coal developments, which indicate the coming of a period of great activity.



## LOUISVILLE.

Natural Gas—Heavy Investments of Foreign Money—  
\$30,000,000 for Kentucky.BRANCH OFFICE MANUFACTURERS' RECORD,  
LOUISVILLE, KY., December 17, 1888.

There has been much excitement in business circles for the past ten days over the publication of the report of Professor Edward Orton, State geologist of Ohio and a celebrated expert on natural gas, as to his investigation of the natural gas territory tributary to Louisville and located in Meade county, about 25 miles distant. Professor Orton was sent thither by the Kentucky Geological Survey last summer for the purpose of investigating the supposed existence of natural gas, petroleum, lithographic stone and some other economic products that were supposed to be waiting for development. His preliminary report, containing a condensed statement of his judgment of the field, has just been sent in to Professor Procter, and has been published. It is eminently in favor of the natural gas field, and as a result, there has been great activity on the part of the pipe line company recently formed to pipe the gas to this city. The only questions that Professor Orton had to settle were whether the wells would continue to supply the gas long enough to justify the great expense necessary to bring it to the city, and whether the pressure was sufficient to deliver gas in Louisville from the wells. Both these questions he answers affirmatively as far as possible. It is, of course, impossible for anybody to undertake to gauge the life of a gas well that has been bored but a short time, but Professor Orton points out that one of the wells in the territory, in which gas is involved with salt water, has been flowing continuously for 26 years without any apparent sign of diminution; that during 13 years of that time the gas has been constantly burning under furnaces used for the manufacture of salt, and that the salt manufactured at this well is produced at less expense and with a greater profit than the salt at any other manufactory in the United States. He takes that to be proof that gas wells in the territory will have long lives if they are bored with reference to the capacity of the territory and with a view to preserving the pressure and economizing the supply. The well upon which he predicates this opinion is a very small one, flowing but 200,000 cubic feet of gas per day, and he shows that if the gas had been utilized for 26 years at the nominal price of ten cents per 1,000 cubic feet, it would have netted the proprietor over \$200,000. The present capacity of wells flowing in the territory is 25,000,000 cubic feet daily, and, at the rate at which gas is to be sold in Louisville, it will be worth \$3,000 per day. These are very large figures, but they do not by any means indicate the extent of the business, because it is probable that within the next three or four months the amount of gas flowing will be more than doubled, and there is no doubt that all of the product will be readily sold in Louisville. It requires about 1,000,000 tons of coal annually to supply this city, and it is estimated that from 8,000 to 12,000 cubic feet of gas are necessary to produce the heat obtained from one ton of coal. It can readily be seen that there will be a demand here for all the gas that the territory can furnish.

The pipe line company have ordered their pipe and supplies on the ground, and workmen began the construction of the line several days ago, with the intention of having it completed and the gas delivered as early as possible. Since Professor Orton's report was published there has been a great deal of activity in the gas territory, the full extent of which has not yet been ascertained. That portion on which wells have been sunk is more extensive than the territory from which Pittsburgh draws her supplies, and yet it is thought that the gas-bearing district extends

westward down the Ohio river and may approach near to Owensboro and Henderson, both of which are thriving and populous manufacturing towns in Western Kentucky. In addition to this, the corresponding territory on the north side of the river in Indiana has been tested by the sinking of three or four wells, which have produced a very large flow, and the product of this territory can be piped across the river and brought to Louisville as readily as if it were in Kentucky. The De Pauw Glass Works management has been deeply interested in the experiments for obtaining the gas, and now that Professor Orton has approved the territory, steps will be taken to secure a supply not only sufficient for Louisville, but for all the great manufacturing industries located in the suburban towns across the river in Indiana. 200,000,000 cubic feet of gas per day could be disposed of within one year from the time the pipe line was completed, and this great opportunity for the profitable use of capital will attract immense investments, not only in the gas companies themselves, but in industries depending upon the use of the gas for the economic manufacture of products.

Scarcely less important than Professor Orton's approval of the gas territory is his recommendation of the salt wells in the vicinity as offering an extraordinarily cheap opportunity for the manufacture of salt. Since 1872 salt manufacture has been going on continuously at the first well discovered, and the present rate of production is about 7,500 barrels per annum. "I am somewhat familiar," writes Professor Orton, "with the conditions of salt production in the country at large, and I think I cannot be mistaken in claiming that the Moreman Works are, by all odds, the most profitable salt works in the country on the basis of the investment and the cost of manufacture at the present time." The experience which the drillers have had in boring for gas in Meade county has enabled them to avoid salt water or to reach it with something like precision, and there seems no reason to doubt that the extraordinary flow of salt water from wells that could be bored could be made to furnish the basis for an extremely large salt industry, and the gas from the salt wells could be utilized for the purpose of keeping the water boiling. At the Moreman well, where salt has been made for years, the fire under the boilers was not extinguished during thirteen years, and all that time the water and the gas flowed uninterruptedly. The only expense required was the dipping of the salt every morning for barreling.

The investment of Northern and foreign capital in Kentucky is very large, and there are at present negotiations pending which promise to result in the location in the State of several syndicates of great power and large capital. One English company has taken all the preliminary steps to purchase a very large tract of mineral and timber land in the southern part of the State, and another foreign syndicate is now investigating the resources of a newly opened territory with a view to outright purchase, and to the development of certain raw materials which at present are not found in the United States, and which are wholly imported for commercial purposes from Europe. Two or three of the new railroads projected in Western Kentucky are backed by foreign capital. There are several Eastern manufacturing and capitalistic companies who have their agents in Louisville examining the prospects which have been so widely quoted for the establishment here of textile industries. It has been estimated by well-

informed persons that the amount of outside capital invested in Kentucky during the last twelve months will reach to nearly \$30,000,000. This has been in most instances used in the building of railroads and the purchase of mineral and timber lands and town sites upon the lines of newly projected railroads, and is, of course, preliminary only to the development of the territory when the roads are completed. As soon as the coal and iron region in Southeastern Kentucky is traversed by sufficient lines of railroad to enable the products to be carried out upon terms equally favorable with other sections where iron and coal are obtained, there will be an immense amount of money put into towns and the establishments of industries. In all of these operations and in nearly every company interested, Kentuckians have put their own money as a guarantee of their confidence, and the profits on these immense sums will largely be kept in the State.

The completion of the Louisville, St. Louis & Texas Railroad has had a most astonishing effect upon that portion of the State along the Ohio river which has been without railroad communication heretofore. At all points along this line the most valuable minerals have been discovered, and within the past six weeks contracts have been signed and all the preliminary work completed for beginning construction upon two new railroad lines that will be feeders to this road, and which will converge upon the town of Fordsville, in Ohio county. One of these roads will start from Cloverport and the other from Owensboro, each of them penetrating heavy forests and great tracts of cannel coal, fine bituminous coal and iron ore. It is the ultimate intention to complete both of these roads to Green river at Bowling Green. The Louisville, St. Louis & Texas Railroad has already, within three weeks, developed an enormous business along the line, and has been unable to procure a sufficient number of cars to transport the freight offered. The road was built by Philadelphia and Boston capitalists, and without any local subscriptions to assist. They are greatly pleased with the investment, and it is understood that the new roads under contract have obtained the money necessary to carry out the work from the same quarter. In the meantime the two prosperous towns of Henderson and Owensboro are feeling a great deal of the benefit of the new road, and will grow largely in population at once. Further west, at Paducah, there is the greatest activity, and the completion of the iron furnace, which is looked for in a few weeks, will be a most important event. It is expected by those interested that iron will be made more cheaply at Paducah than at Birmingham, and, having the advantage of several hundred miles of transportation on the way to the market, it is believed that the furnace will be a most profitable investment.

General Manager A. A. Arthur, of the American Association at Cumberland Gap, summarizes the status of work at that point as follows: "Leases have been made for the mining of coal and the operation of a coke plant with G. R. Eager and friends, of Marietta, Ga. and also with Messrs. Watts Bros., of Cumberland Gap, Tenn. There are other leases I will inform you of in a short time. The companies are now under organization. As to the 80-ton furnace, I have had a proposition submitted to me for its immediate erection in the town of Middlesborough, and I have submitted the proposition to my board of directors for approval. I have also in negotiation the organization of a company for the establishment of four other furnaces in Middlesborough, but the negotiations are not yet far enough along to warrant me giving details. All of our furnaces and coke and coal plants, and those of the subsidiary companies connected with us, will be estab-

lished at and around Middlesborough on the Kentucky side of the Gap. You know, of course, that the coal hills surround the large valley of Yellow creek, in which the town will be situated. We will also, before our sales in May next, establish, or have established through others, large brick works for the manufacture of common bricks and fire-bricks, and possibly some other factories as well. Our own railroad will be open to the Gap by the first of May, and the Louisville & Nashville is under contract to be completed to the Kentucky side of the Gap by the 15th of April. There are other railroads building towards the same points, and we expect a very large and speedy development of that country.

## NOTES OF PROGRESS.

The amended report of the Railroad Commission shows that 629 miles of new railroad were added to the taxable values of the State in 1888. About 400 miles are now under contract.

The machinery for the Louisville cotton mill was delayed and the mill will not be able to start up before February 1st. The buildings are all under roof and are models of convenience and safety.

The great office building of the Louisville Commercial Club will be leased to tenants before three stories are up. It will require at least ten stories and a double basement to supply the demand for space.

The consolidated Kentucky & Cherry Mound Wagon Manufacturing Co. are moving into their immense works at Louisville. It will take some weeks to complete the labor, and then the largest wagon works in the world will be ready for operations.

The Pineville Land Co. are negotiating with parties for the establishment of a mill at Pineville to manufacture Russian sheet iron and ordinary block sheet. New lumber industries are also being established at that point, and it is probable that next spring will see some most important developments well under way.

Asphalt is being mined on a large scale in Hardin county, near Elizabethtown, where fifty laborers are employed opening the deposits leased by W. L. Breyfogle. The product is shipped East, where it is worked into commercial form. It is understood that steps are being taken to manufacture the material in this State.

The Three Forks Investment Co. has been organized for the purpose of building houses and establishing industries at Beattyville. The company includes some of the most influential and successful business men of Kentucky, and preparations are making for a large increase of population when the railroads reach that place next summer.

A number of German citizens of Covington have purchased an immense tract of land in Eastern Kentucky containing a small town, saw and grist mills, coal mines, salt works, natural gas and a large variety of timber, and are paying for it on the building plan association. Their company is to be known as the Beehive Land Association. The intention is to colonize the property, incorporate the town, and offer free land, timber and gas to manufacturers.

The increase of coal mining industries in Kentucky tributary to Louisville is shown in the figures of the State Inspector's report, which gives 7,055,276 as the number of bushels of (Kentucky) coal shipped to Louisville for the year ending June 30 last, against 3,783,225 bushels for the preceding year. The output of collieries in the State for 1888 will be nearly double that of 1887. New openings are being made weekly, and 16 "commercial" mines are now being prepared for business. Some of these are important.

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## BIRMINGHAM.

Recovering From the Excitement of the Hawes Horror—Politics, Industrial and Commercial Prognostics—The American Mediterranean and its Gibraltar.

[Special correspondence MANUFACTURERS' RECORD.]

BIRMINGHAM, ALA., Dec. 17, 1888.

In days of old, or rather a couple of years ago, the subscriber used to write for a constituency that daily heard about and thought about the young but lively city of Birmingham, situate in and bounded on all sides by the once glorious and now awakening State of Alabama. Readers of the MANUFACTURERS' RECORD may have learned that the uncertainty concerning what might be done by the country in respect of the protective tariff, had caused a lull in the progress of this city and district; because, whatever politicians might announce, investors, people engaged in development and the laboring class felt certain that protection meant, and means, the continuous and full development of the South, while the Cleveland-Watterson free trade programme means, and always did mean, the destruction of the New South as a mining and manufacturing region.

## THE HAWES HORROR

Perhaps Birmingham and its environs had been lost to sight, comparatively, for awhile, but there is no doubt that very recent events have again brought this center to the memory of man in a way that we might reasonably have deprecated. Just as we were congratulating ourselves upon immunity from the yellow fever scourge and that the election of General Harrison would give new courage to our people and put new blood into our industrial and progressive circulation, we had to wake up to the possession and exclusive enjoyment of one of the most infernal crimes and sensations that ever afflicted or exasperated an American community. It is probable that those of the MANUFACTURERS' RECORDS' readers who care to wade through a truly terrible and most unusual tale of blood and fiendish butchery, together with the narrative of the civil disturbance, riot and assault upon the jail that followed it, will have seen all that they want in the columns of the daily press. If they have not, the whole history is in the press of the Caldwell Printing Co., Birmingham, from which office books are advertised by thousands and editions. Let us avoid these harrowing details. The community has had its lesson of blood, and perhaps has learned that it is even dangerous to appear to attack a public building guarded by armed men after due notice to keep away has been issued by the civil authorities. But the riot and the agitation are over, all the corpses of the murdered have been fished out, the victims of the Saturday night fight have been buried and the people of Alabama and Birmingham are as busy as you please getting ready for Christmas and the financial and commercial settlements which seem somehow to hover around the close of the year.

## BANKS AND BUSINESS.

That these settlements and records of business will show favorably of the business conditions and standing of Birmingham there can be little doubt. Although we have passed through a crucial period, extending over a series of months, everything is on the rise again, and the finger of Eastern and foreign capital is once more poking around to feel for plums in the local situation. A number of considerations probably justify this renewed active interest in resources and development "this-a-way." The combined capacity of all the furnaces, when the new ones are

fully at work, will strain the ability of the coal and ore mines and limestone quarries—more especially if the railways do not increase their rolling stock for freight purposes faster than they look to be doing. Mineral properties are once more in something like active enquiry, and it may be said with truth that there are not so many remaining as might be supposed. All through the dull times of the past year a number of our local capitalists have been taking in everything good that might chance to be offered, and this amiable tendency has been shared in by the shrewd Eastern friends of our leading operators. Next spring, with its booms and "diamonds," will doubtless disclose a jolly lot of fellows who never "despaired of the Republic," as represented by the New South, and whose happy homes are in Birmingham, Anniston, Atlanta, Richmond, Baltimore, Philadelphia, New York and Boston. Events will surely justify the prediction that the capitalists of all the cities mentioned will be found in combination, actual or incidental, in the newer and greater Southern movement that is to open with the inauguration of President Harrison next March.

## WHY THE NEW SOUTH HOPES.

To a reading public like that of the MANUFACTURERS' RECORD it is about superfluous to detail the reasons for the great hope of development and material prosperity that may be detected everywhere throughout the New South. The tariff ghost is laid effectually, and that means, among other things, peace of mind and confidence in the efforts we are making to secure all the early results possible in connection with our mineral and timber resources and interests. We can rest easy at last as to the danger that cheap English pig irons might be dumped as ballast at Pensacola and Mobile, and we are no longer afraid that the cheap timber and lumber of Canada can devote our vast timber reaches to solitude for the next five and twenty years, as appeared possible before the American people sat down upon the free trade cult of "them which shall be nameless." Perhaps the importance of this timber and lumber matter has not been fully appreciated even in the South, where the full effect of the Mills movement would have been felt more disastrously than anywhere else. Birmingham is not a considerable lumber center when compared with some other towns. It is, however, the center of the famous long leaf yellow pine region, which extends from about the latitude of Blount Springs, say 30 miles north of this city, to a latitude about 18 miles or so south of Montgomery. Over two years ago your readers were reminded that the lumber output of Birmingham and its tributary surroundings amounted to nearly 800,000 feet of finished lumber per diem. Nearly all of this was and is sent to the cities of the East and North; all the way from Boston and Albany to Leadville, in fact. Our mills have become favorably known as possessing all the modern conveniences and facilities; as turning out a material which has won a settled place in all the coarse and finished and fine

## LUMBER MARKETS OF THE COUNTRY,

and these markets were and are worth the having and the keeping. People in this section who took the trouble to look at the situation at all were not best pleased with the efforts of certain Southern statesmen, no doubt aided and abetted by certain Northwestern lumber barons, to shut up our mills and our whole timber and lumber development for the behalf and benefit of districts which, having grown enormously rich and prosperous under protection, but having exhausted their own area of raw material, were not unwilling to obtain foreign raw material to the detriment of new and better forest regions of their own

country, the same being greatly in need of the principle of protection to American industries.

## IT DID NOT WORK.

But that jig is definitely up. It is said that good pine stumpage in the State of Michigan is worth forty dollars per acre. In some parts of Wisconsin and in Minnesota the cost is probably less, but all through that old region the end of the timber supply, both as to coniferous and deciduous woods, is in sight. The Northwest has been largely built up on the increment of the great lumber and wood-working interests. Big towns like Grand Rapids, Kalamazoo and so on have been established and maintained upon the basis of the Northwestern timber supply. Do we not know it? Does not the South to day, albeit in possession of more than three fourths of the standing timber on the continent east of the Rocky Mountains, have to go to Detroit, Grand Rapids, Kalamazoo and other points for all its furniture, bank, hotel and office fixtures, its wagons, buggies, axe helms, yokes, wheels, spokes, potato mashers, bread bowls and almost everything else that can be tortured out of wood by human ingenuity? Perhaps the people of the South at large have not thought seriously of this, but there are not wanting Southern people who have; and these have not been kindly disposed towards Mr. Mills and his hypocritical bill. There will not be any free lumber under Mr. Harrison, as there certainly would have been under Mr. Cleveland if the latter had been re-elected; and, as the Canadian Government, with an unconscious kindness to Southern enterprise, has enacted a high export duty upon Canadian timber and lumber, we shall reap a legitimate benefit all the sooner.

With a clear business prevision which our own people would do well to imitate, our Northern and Northwestern friends have been investing largely in Southern timber for a number of years. This means that in case they could not secure a foreign free raw material to feed their plants at home, they would ultimately move South. That is exactly what we shall see them doing in the very near future; and the establishment, growth and development in our region of important settlements and cities, repeating the history of the lumber, furniture and wood-working towns of the Northwest, may be looked for with complete confidence. Nuclei of industry like these will involve new elements of sturdy skilled labor, will justify, demand and secure surroundings of skilled and intensive agriculture—will turn into highly organized and prosperous communities vast districts now almost in a state of virgin wildness.

## GOLDSMITH BERNARD WEST.

THE annual report of Mr. David T. Day, of the United States Geological Survey on the Mineral Resources of the United States, is an invaluable work. Its 800 pages are filled with information of all kinds relating to every mineral of the country, the locations where found, the production, the manufacture of the crude material into higher forms, &c. It is a work of national scope and of national interest.

## OFFICE OF

WISWELL ELECTRIC MINING MACHINERY CO.

No. 4 Post-office Square,

BOSTON, Mass., Dec. 15, 1888.

Manufacturers' Record Co.:

Gentlemen—We have many calls for catalogues through your paper, and shall continue our advertisement with you in preference to any other Southern journal.

WISWELL ELEC. MINING MACHINERY CO.,

A. A. REEVE, Treas.

## Virginia's Magic City.

ROANOKE, VA., Dec. 15, 1888.

Editor Manufacturers' Record:

Hundreds of years ago, before Columbus ever thought of setting sail to discover a new world, the Indians gave the name of "Rawrenoke," or precious money, to the fertile valley in which this city is situated. It is possible that the aboriginal prophets did not know what an appropriate appellation they gave to the place, but to a superstitious mind their augury contains something of the supernatural. For Roanoke has not belied its name. It has certainly developed into "precious money," and its industries, its situation, its railroad facilities, all tend to make it a veritable gold mine to the fortunate property-holder.

Here in this valley, unsurpassed for its beauty and great fertility, where some seven years ago clustered a few houses with a population of about 400 souls, with every characteristic of a "sleepy country village" in all that the name implies, known in the postal and railway guides as "Big Lick," now shines resplendent in all its glories the well-named "Magic City" of Roanoke with its population of 15,000 people, teeming with wealth, culture, industry, energy and vim. Where a short time ago were muddy country roads and open fields, now are lovely vistas of handsomely laid out streets, beautified on either side with numberless substantial business blocks, elegant churches of modern designs, banks, hotels, courthouse, market-house, opera house, public-school buildings, etc., etc., whilst row after row of handsome private residences, whose beauty of architecture, combined with their naturally charming locations, will compare most favorably with those of any city in the South. The rapid growth of Roanoke has been of a firm and most substantial character, and every feature of the city's progress tends to the belief that the city is as yet in its infancy, and its future is almost boundless. Surely no location for a city was ever more peculiarly fortunate in its selection, situated as it is in the most healthful and, agriculturally, the most fertile and productive portion of Virginia, one thousand feet above the level of the sea, between the Blue Ridge mountains on the east and the Alleghany mountains on the west, surrounded, within easy reach, with the greatest quantity and variety of undeveloped mineral wealth, principally coal and iron. These coal fields are the richest in the world, whose developments are yet in their infancy. Roanoke, "the busy and the beautiful," is located at the junction of the Norfolk & Western and the Shenandoah Valley Railways, where are the general offices of these two roads. Here are located the immense plant of the Roanoke Machine Works, valued at \$5,000,000, employing 1,500 men, filling immense contracts for locomotives, cars, bridges, machinery, etc.; the Crozier Iron & Steel Co., employing 300 men, with an output of 120 tons of pig iron per day; the Norfolk & Western and Shenandoah Valley Railways have here too their general offices, with their officials and clerical force amounting to over 400 employees. The pay-rolls of these different corporations amount to more than \$150,000 per month, all of which is paid to the citizens of Roanoke. Here, too, are many enterprises and industries of almost every character, all of which combined tend to make Roanoke a large, growing and prosperous city. Capital and capitalists are daily coming into the young city seeking investments, where real estate is from 25 to 50 per cent. cheaper than in any other city of promise in the South, and whose destiny promises to be that of one of the largest manufacturing and industrial centers of the South. Capitalists, whether of large or small means, find here abundant and safe opportunities for investments of a healthy and substantial character. Parties journeying through the South should not hesitate to spend a few hours here in the Magic City and behold the wonder of its rapid and beautiful development.

RAMBLER.



## LITTLE ROCK.

The Star of the Great Southwest—A Future Roseate with Material Wealth and Development.

The Facts Showing Its Manufacturing Advantages, Its Favorable Location, Its Proximity to Fertile Lands, Valuable Forests and Mineral Deposits.

[Special correspondence MANUFACTURERS' RECORD.]

LITTLE ROCK, ARK., Dec. 8, 1888.

This is my sixth day at Little Rock, and every one of these six days has seen a cloudless sky and an atmosphere that can ordinarily be seen or felt elsewhere in the temperate latitude only in the approaching days of autumn.

This city is located on the western boundary of the rich alluvial deposits of the Mississippi valley, and the country lying east of it is, and probably will continue to be, given to the growth of cotton and corn. Beginning within twenty miles of Little Rock are 400 square miles of typical western prairie land, which is being rapidly taken up by cotton planters, grass growers and stock raisers. From the natural grass of this prairie is produced the greater part of the hay used in this section. While in this alluvial land east of the city corn grows luxuriantly, it is the cotton that is the great staple, this fibre taking highest rank in the Liverpool market.

Little Rock within a few years, from handling 25,000 bales of cotton per annum, has advanced to 100,000 bales, this not taking into account cotton transferred and compressed here, which is included in the computation at other points. This heavy cotton business has led to the erection here of two mammoth cotton compresses, three extra size cotton-seed oil mills (one of which is the largest in the world), and the most modern and largest cotton shed in the South, covering eleven acres of ground. This showing must necessarily lead to the establishment here of numerous cotton mills. It has already resulted in locating at this point two cotton gin manufactories, the manufacture of sulky plows and the manufacture of the most noted cotton presses extant. And owing to the proximity of fine timber and central position, Little Rock is destined to be the principal manufacturing city of cotton implement's and machinery.

## LOCATION, &amp;c.

This city is located also on the eastern border of the western uplands, and is at the head of deep water navigation of the Arkansas river. This upland country, while now largely cultivated in corn and cotton, and while the ordinary agricultural products are produced, is peculiarly adapted for the growth of fruits, grapes, berries and small grains. The apples grown upon this soil have taken first premium at New Orleans Exposition, the California fruit display and the Boston pomological contest, taking here the celebrated medal.

## MINERAL AND TIMBER RESOURCES.

Immediately around this growing city there lies dormant probably a larger variety of valuable mineral deposits than can be found elsewhere in the same area. Near the corporate limits is found a fine quality of white sand, which experts pronounce of the best kind for glass manufacture. There is a bed of silicate sand, 65 feet deep, within nine miles of the city, and within five miles slate exists in large quantities near the surface of easy cleavage and fine metallic ring suitable for roofing and school purposes. Commencing three miles from Little Rock and running west for sixty miles, there is a slate deposit of purple, blue, black, buff, red and gray. Twenty-one quarries are now opened. Just outside the city are heavy deposits of

a high grade of kaolin. Within twenty miles of the corporate limits is the largest body of pure steatite (soapstone) in the known world. In the hills, fourteen miles from town, there exists a large tract, bisected by the railroads, which contains manganese, iron and limestone lying contiguous, each of which has been thoroughly tested and found to be of the best quality. The surface of this tract is thickly covered with timber, excellent for charcoaling. An eminence bounding the city on the south, called Fourche mountain, is of solid granite, which is being quarried. The business streets of the city have been paved with it. The county courthouse is built of this material, and it is destined to be the building stone of this locality. It is only recently that coal has been used for domestic purposes here. This is due to the finding of rich coal deposits in every direction from the city.

Thirty miles north of Little Rock there is an inexhaustible mountain of the richest coking coal, with a high percentage of carbon, unsurpassed for furnace and metallurgical purposes. This being located near the city, it becomes a most important factor in the development of the city industries. Nine miles distant from this city lead mines are being worked, this argentiferous galena carrying from 6 to 300 oz. silver to the ton, and zinc is now being shipped from the same locality, paying \$32.50 per ton. In addition to this, the geological survey of Arkansas shows rich deposits of marble, potters' clay, lithograph stone, and probably reservoirs of petroleum and gas. Ochre and all other preservative paint materials are found nearby. Arkansas has the only paying body of antimony of any State in the Union being worked at a profit by the owners. This State produces the greatest body of novaculite or oilstone in the world. Copper is also found in enormous quantities.

## HEALTH STATISTICS.

The famous 35th parallel of latitude, which is recognized as being the point on the earth's surface most conducive to the well-being of man, and having the best mean temperature, traverses along the northern suburbs of this city. Little Rock is situated on the first elevation west of the Mississippi valley. The surface is undulating, giving fine natural drainage. The climate is salubrious. The cessation of outdoor work on account of severe weather is the exception, even during the winter season. A case of "frozen-to-death" has never been known here. Death from sunstroke has never occurred. Nothing classed as epidemic disease has ever afflicted this community. None of the complaints peculiar to localities have appeared here. Typhoid fever is a great rarity. Ague, peculiarly the disease of a newly settled country, is infrequent. The ordinary diseases are reported by the physicians of taking on a milder type. The health chart prepared by the United States Government shows Arkansas to be as free from pulmonary complaints as any part of the country. The vital statistics carefully collected put the death rate of this municipality among the very lowest.

## SOCIAL ADVANTAGES.

Being the capital of the State and the largest and wealthiest community in the Southwest, the intelligence of this section gathers here. All the State charitable institutions are established at this point. The church property valuation is \$440,000, nearly every denomination being represented by handsome and artistic edifices. The school buildings are valued at \$350,000. In addition are the Arkansas University, St. John's College, Female College, Medical College, Philander Smith College, St. Mary's Academy and Little Rock Business Institute. The Little Rock high schools take high rank with the educators of the country.

## BUSINESS ADVANTAGES.

All the principal business streets are being provided with good paving, granite block predominating. Within the last two years 100 miles of sidewalk have been built. In the city there are large gas works, two incandescent electric light plants and one arc electric plant, and in addition the city owns and operates an arc electric plant, giving 200,000 candle-power. Here are located the largest water works in the Southwest. Within the last decade the banking capital has increased from \$100,000 to \$900,000. In addition a bank just organized will commence business first proximo with a half million capital. Notwithstanding this, the business demands make additional banking facilities necessary. The public buildings are valued at \$2,000,000. The total valuation in the city liable for taxation is \$10,000,000. The total indebtedness of the municipal government is but \$175,000, represented by bonds not yet matured, the interest coupons of which are promptly paid. The county of which Little Rock is the seat issues no script, and pays cash for all claims and demands. The assessment valuation in the city is comparatively low, the rate of taxation being for all purposes, State, county, school and city, but 25 ml. ls. In conclusion on this point, taxes are being reduced year by year below this rate, notwithstanding a modern jail just built, a new courthouse being erected, and all the State institutions, including insane asylum, blind institute and deaf and dumb asylum, have just been erected.

## RAILWAY FACILITIES.

The Iron Mountain Railway, the Little Rock & Fort Smith Railway, the Memphis & Little Rock Railway, the St. Louis, Arkansas & Texas Railway and Little Rock, Mississippi River & Texas Railway give fine railway facilities. There are now being built to this place two other roads, and several others not only projected, but will be built. This county, by a system of working its prisoners, has just built five miles of fine solid road leading from the city. In a few years the best quality of macadamized roads from every principal point in the county will radiate to this city. An electric street railway is finished and operated to the hills southwest of the city, giving access to handsome suburban property. This electric railway will soon be built over several miles of the city streets. Nineteen miles of horse car track are operated over the principal streets, being double-tracked along the business thoroughfares. Under a local improvement law, the body of the city has been well and permanently sewered by the Waring system. Twenty-five storehouses are in course of erection, and these, added to the residences of a handsome character, as well as tenement houses now building, make the demand for workmen far in excess of the local supply. Contractors are advertising constantly for skilled labor.

## NOTES.

Surely the future of this section will surpass the anticipation of the most sanguine promoters in the development of the great South and the Southwest.

The heavy transient business caused by the central position and the accessibility of this city, causes an urgent demand for additional hotel accommodation, and marks this as the site for a great hotel at no distant day.

The development of this place as a cotton market has resulted in the establishment here of oil mills, presses and an enormous cattle business as an annex of the oil mills, and so will the cattle business result in packing-houses, tanneries and leather manufactories.

In conclusion, I deem it proper to say that the resources and advantages of the country tributary to Little Rock are of such variety and magnitude, that even a

partial description of them as given above is so apt to be received by the public with incredulity, that I will say the statements made in this connection were only given after a careful and honest inquiry from the best and most reliable sources.

The great and varied timber resources encircling this point, together with the floatable capacity of the Arkansas river and its numerous tributaries, demands the location here of numerous wood-working establishments. Probably no section of the world has such a variety of valuable hard woods as this State, of which this city is the geographical center. There were shipped out of this State last year over \$20,000,000 of sawed lumber, besides ship timber shipped to Liverpool.

The severe rigors of the winter seasons and their long duration have shown this Northwest to be an inhospitable and unprofitable country. Beyond all doubt the time has come when the tide of emigration will vary its direction from the Northwest to the Southwest of the United States. Here is a temperate climate, great variety of soil for agricultural pursuits, with twice the working days per year, and with a great number of valuable mineral products, boundless forests, cheap living, and greater healthfulness.

For a quarter of a century and more a constant stream of emigration, coming in through New York City, has flowed westward in the latitude of that city to the States and Territories of the Northwest. The direction taken by this army of settlers is due, first, to the great efforts made by the railway projectors of that section; second, to the easy communication and cheap transportation; thirdly, to the antebellum prejudices existing toward the Southern part of this country on account of slavery, and which prejudices have only of late begun to subside.

Little Rock is a field for every branch of the steel, iron, copper, lead and pottery industries—pottery products from pure porcelain to the commonest ware. Here also can be prepared from native materials every species, color and variety of mineral paints. There is now a paint works here with capacity of a car-load per day. In this city there is an opening for marble and other stone industries, as the marble of this State will compare with the best in the Union; also for the preparation and manufacture of the finest quality of lithographic stone and lithographic works. This State produces more lithographic stone of the best quality than any other.

THE LANDS OF THE SOUTHWEST TO BE THE ULTIMA THULE OF THE COMING SETTLER—THE INCOMING TIDE OF EMIGRATION FLOODING THIS WAY.

That there is a great reflex action in the Northwestern emigration setting in toward the Southwest is evident even to the superficial observer hereabouts. That this should be so is but natural and reasonable. Compare the insect plague of the Northwestern Territories and States with the total absence of these pests in the Southwest. By the side of the blizzards and snow squalls and low temperature of the former put the short, moderate, open winters of the latter. Compare the frequent summer droughts of Dakota and Kansas, making frequent total crop failures, with the regular, even and copious rainfall during summer solstice in Arkansas, where a total failure of crops has never been known, and, together with this, the resulting cheapness and uniformity of living, taken with the greater variety of products and diversity of pursuits, with abundance of wood of various kinds which exist here, and the only remarkable view of the situation is that the great tide of foreign emigration should not have originally flowed west on a lower parallel of latitude.

The following description of the mineral lands owned by the St. Louis, Iron Mount-



ain & Southern Railway Co. and the Little Rock & Fort Smith Railway Co., offer to day to the capitalist and the prospective settler opportunities and advantages second to none in the United States.

#### ST. LOUIS, IRON MOUNTAIN & SOUTHERN RAILWAY CO.

No railroad in the Southwest has done more for the development of this section than the St. Louis, Iron Mountain & Southern Railway. When it is taken into consideration that the State of Arkansas comprises an area of 52,198 square miles, or 33,406,730 acres, and that this railway system has almost virtually cut it in twain, it becomes an easy task to realize what a most important factor this roadbed has been in the wonderful developments that have taken place during the past decade.

The land grant of this railroad begins at the southeast of Missouri and runs through Arkansas to the northeast corner of Texas, which comprises land on each side of the railway, that on the east being principally fertile bottom land, above overflow and covered with a heavy growth of valuable woods, largely accessible to five rivers, navigable to deep-draught boats the year around. In fact, the 500 miles covered by this railway through Arkansas is the best watered country, and has more miles of navigable rivers than the same territory elsewhere on the inhabited globe.

The country forming the western portion of this railroad land is mostly of the upland character. Considering the scope of territory comprised in these lands, the considerable latitude covered by them, the variations in elevation and differences in composition of the soil, there is probably all the varieties of climate, products, woods, grasses and fruits known to the temperate zone, susceptible of production. There is a considerable part of this territory subject to purchase from the railroad at a comparatively low price. Owing to the energy, good judgment and extraordinary efforts of Mr. Thomas Essex, the land agent of this road, this region has been populated by farmers and artisans of a good character from all parts of this country and Europe, and while the railroad has been largely benefited, the State and the people have seen results largely beneficial to this growing Commonwealth, the purchasers themselves have doubtless most to congratulate themselves upon in having been induced to settle where they have.

There is held in the office of the land department of this road at Little Rock the most varied display, taken from their land, of minerals, fruits, cereals, grasses, stone, marble, woods, berries and agricultural products that has ever been collected from any one source wholly within a single State. This railway company is following up with great show of success an investigation as to the utility of the fibre of various woods, especially the cotton stalk, in the manufacture of bagging cloth goods and paper. The feasibility of this effort so far as regards the cotton stalk has been pronounced by eminent authorities, after partial trial, to be assured.

The productiveness of the greater portion of this land grant soil in the growth of cotton makes this attempt to utilize the cotton stalk of great importance to the farmers, and like the modern adoption of machinery that has made the cotton seed the source of large revenue to the cotton grower in the matter of using the cotton seed, which was before useless and waste, so this new projected machinery will bring to the pockets of the cotton producers large sums from the stalks which heretofore have been allowed to stand and rot where they grew.

The United States statistics, referring to the percentage of profits in agriculture in the States of the Union, show a greater per cent. of profits in Arkansas, than in any of the other States. Along this rich land

grant, covering a large extent of territory, is found yellow pine, which is the principal building lumber of the South, also a large amount of cypress, equal to white pine for all purposes and surpassing it in durability for external use. The tupelo gum grows in large bodies. This wood is being extensively used in furniture manufacture as imitation of cherry, and is called by furniture manufacturers satin wood. Close grained hickory is largely shipped and used in the manufacture of vehicles. One hundred varieties of oak are taken from these lines, and millions of feet of it are consumed annually in the cooperage business. There is not a furniture factory in the country which does not use wood taken from Arkansas.

The mineral resources of these lands have only been slightly developed, and there is to-day offering to the capitalist and the prospector in the erection of furnaces and smelters a most profitable enterprise.

To the farmer and the fruit grower this is a country of good climate, free from the extremes of winter and summer, of long seasons of growth, of great healthfulness and large yield. The rapid settlement of this territory, together with the fine fostering laws of the State, have led to a good system of public schools, conveniently located even in the most sparsely settled districts.

Owing to the good winter grazing and the luxuriant growth of grasses, this region is peculiarly adapted to the raising of sheep, cattle and fine stock. Housing is not necessary at any season of the year. Dairy pursuits yield abundantly.

Cheap lumber, adaptability of soil for brick-making, accessibility to building stone and fine water for domestic use make building comparatively cheap and easy.

The great fertility of the soil is evinced by the luxuriant crops produced throughout the State. Cotton is the great staple, and forms the basis of agricultural wealth in Arkansas. She is the first cotton State in the Union as to quality, and second as to quantity; and if we count by square miles she is the first. Texas only stands ahead. Corn is produced in all soils, and in every section of the State, yielding an abundant return and rarely fails. Wheat is also cultivated in all parts of the State, and fine crops are produced. Tobacco is raised throughout the State for home supply, and only in portions has been made a market crop, but from experiments made by those who formerly cultivated the plant in Lancaster county, Pa., it is pronounced for the manufacture of cigars equal to that of Pennsylvania or the Connecticut valley.

Oats and barley succeed in all parts of the State, yielding abundant crops. These, however, have heretofore been generally produced for domestic use and not for market. Buckwheat yields abundantly, but is raised only for home demand. All kinds of root crops produced in the temperate zone succeed in this State.

As to the money value of farm crops per acre, in comparison with other States, I will give a few statistics from the United States agricultural report. I copy from the report of the statistician:

	Corn.	Rye.	Oats.	Potatoes.	Hay.
Illinois....	\$ 6.77	\$6.64	\$ 6.46	\$30.34	\$ 7.65
Indiana.....	8.86	7.30	5.99	30.68	7.66
Ohio.....	11.52	9.08	7.50	34.48	9.85
Kansas.....	6.44	5.98	6.19	37.40	5.89
Virginia.....	7.52	5.16	5.34	43.30	17.30
Tennessee..	7.91	7.32	5.73	28.29	14.95
Arkansas...	11.51	9.51	11.07	28.65	29.94

The following is the average cash value per acre on all crops taken together:

Illinois.....	\$ 7.68	Virginia.....	\$ 8.82
Indiana.....	9.85	Tennessee.....	9.30
Ohio.....	12.08	Iowa.....	1.80
Kansas.....	7.85	Arkansas.....	15.68

It is impossible within the compass of a correspondent's letter to give more than a condensed statement of the advantages and resources of any locality. To those who desire information more in detail regarding the opportunities offered here

I would suggest correspondence with Mr. Thomas Essex, of Little Rock, Ark., who is not only well qualified and well posted, but who we can from a limited acquaintance highly recommend as a gentleman possessing all the qualifications necessary to give an accurate and reliable report.

#### LITTLE ROCK & FORT SMITH RAILWAY.

This road, running from Little Rock to Fort Smith, and traversing the valley of the Arkansas, on the north side of the Arkansas river, owns a land grant comprising all the varieties of soil, from the rich bottom land to the fertile upland, the former growing the finest quality of cotton and corn, the latter producing small grain, grasses and fruits, including berries.

The lowlands are covered with heavy growth, including over one hundred varieties of valuable hardwood; the hills in addition, too, being well wooded, contain a large variety of valuable building stone, minerals of most every kind, especially large deposits of semi-anthracite and bituminous coal.

This land grant, while traversed its full length by the railway, is every few miles cut by streams susceptible of floating timber and rafts, while giving the soil immunity from drouths, there never being within this section a total failure of crops.

The climate in the locality of this land grant is salubrious. The winters are of short duration and never severe, there being considerable winter grazing. The long but mild summer season makes two crops of many products, where only one is the rule elsewhere.

The health of Arkansas is unexcelled by any locality, and people seeking homes along this line of railway will find good school laws and numerous schoolhouses, together with easy access by rail and river to the best Western markets.

While a large portion of this grant has been taken up by settlers, they have been of a character for thrift and sobriety above the average, given settlements and prosperous villages with the advantages of religious organizations, schools, and society of the best order. There are still subject to purchase some of the best bottoms and uplands in this grant, and the principal object of the railroad company in the sale of these lands being to populate the country tributary to its road by a good class of settlers, the prices of these lands are practically nominal for actual use.

Although this country, now in the early steps of development, is given almost exclusively to agricultural pursuits, it is destined to be the support of numerous skilled mechanics for the development and manufacture of almost boundless mineral deposits, and millions of feet of lumber for building purposes, furniture and wooden ware. This is peculiarly the land and climate for grape culture. The larger fruits, such as apples and pears, have been dressed with the blue ribbon at more displays of note than the fruit from any other region of the United States.

Here are close on to a million acres from which can be selected a farm for the growth of the celebrated brand of cotton known as the "Arkansas Valley fibre," from which can be selected a farm for the growth of an innumerable variety of grasses of a fine quality for hay making or grazing, or for the growth of the best kind of grain products, or fruits or stock raising or poultry. None of these pursuits doing possibly well, but excellently well.

Compared with the condition of the horde of foreign settlers dumped through Castle Garden into the Northwestern Territories, the situation and surroundings of the farmers in this Southwestern country is a paradise. While those frozen denizens of the region of blizzards, grasshoppers and drouths are drifting before the snow storms peculiar to that section, the

farmers of the Arkansas valley are producing never-failing crops with open winters, long and mild summers, entirely free from the drawback afflicting Northern latitudes.

#### CATTLE RAISING.

The United States agricultural reports give Arkansas 155 different varieties of native grasses, which is a larger number of different kinds of grasses than any other State has ever produced. Domestic grasses of all kinds have been tested with gratifying results. Red clover grows to perfection, especially in the reddish upland soil. Orchard grass grows best in shaded ground. Alfalfa is well suited to all kinds of soil in Arkansas. Bermuda grass grows to perfection, and Blue grass does well wherever it has been tested. From all of which, together with the abundant supply of running water in all parts of the State, it would seem that cattle raising might easily be made a success.

The Bureau of Agriculture, in estimating the number of cattle of improved breeds in this country, gives Arkansas 61,077 in a total of 678,628. The Department also, in estimating the improved value given to cattle by the crossing with those of high breed, fixed the percentage of improved value in Arkansas cattle due to such crossing at 33 per cent. In 1880 the value of live stock in Arkansas was \$20,472,245; in 1884 it was \$24,876,872; in 1887 it was \$28,980,600.

#### LUMBER.

Arkansas has an immense wealth of lumber, and a ready market at high prices in the adjacent prairie countries of Texas, Kansas and the Indian Territory. It is estimated that 41,315,000,000 feet of short leaf yellow pine yet stands untouched in Arkansas forests. There are also oak, hickory, ash, walnut, red gum, (so called satin wood or satin walnut), cottonwood, pecan, etc., etc., in practically inexhaustible quantities. The industry of cutting and manufacturing lumber is now immense in Arkansas, and rapidly increasing every year. In 1880 there were 319 lumber companies doing business in Arkansas with a capital of \$1,067,840, employing 1,744 hands, and producing \$1,793,848 per year. In 1887 the industry had increased to 893 companies, with a capital of \$3,540,000, employing 5,320 hands and producing \$5,372,600 per year.

#### L.

No State can reasonably expect great or permanent growth without cheap fuel. Coal is, by common consent, the fuel of the age. Arkansas is rich in this as in many other resources. She has over 2,000,000 of acres underlaid with coal, varying in thickness from three to nine feet. This coal is conceded to be the equal at least of any coal found anywhere for steam and heating purposes. It is remarkably free from sulphur, burns almost without smoke, and is shown by analysis to be from 80 to 85.6 per cent. of carbon. The vast coal fields of semi-anthracite coal cover an area of not less than 12,000 square miles. These coal fields are but little developed, but so far as known they are of great extent and richness. Dr. David D. Owen says of these coals: "The character of this coal is worthy of especial notice. The approximate chemical analysis shows it to be a semi-anthracite coal, rich in carbon and containing a small proportion of oxide colored ashes." The amount of fixed carbon therein shows its great value in heat-producing properties. Messrs. Chauvenet and Blair say: "No coal as good as this for tin smelting occurs in Illinois, and the low per cent. of sulphur—say one per cent.—is an additional advantage. We do not hesitate to pronounce this an excellent coal for use in blast furnaces." Prof. R. W. Jones says of the coal: "If the sample I handled is an average specimen, this coal is valuable both for the manufacture of illuminating gas and

(CONTINUED ON PAGE 16.)



# SHEFFIELD, ALA.

## The Iron Manufacturing Center of the South.

**A**T THE HEAD OF NAVIGATION, ON THE TENNESSEE RIVER, SHEFFIELD is the *natural outlet* for the mineral and manufacturing products of Alabama and neighboring States seeking a water route to points on the Ohio and Mississippi rivers, and to the Gulf of Mexico, as well as the best *distributing point* over Alabama, Eastern Mississippi and East Tennessee, South Carolina, Georgia and Florida for Northern and Western produce, groceries, provisions, machinery, &c. Three Railroads already completed and in operation, and several others assured. *Principal shops of Memphis & Charleston Railroad*, in which cars and locomotives are to be built, are under contract to be erected here. These will employ between *four hundred and five hundred mechanics*, and consequently, with their families, will make an increase in population of at least two thousand people. Shops of three other railroads are contracted to be located here, some of them being now under construction.

## FIVE COMPLETED BLAST FURNACES

Have a capacity of 700 tons pig iron per day. Experts do not hesitate to say that *iron can be manufactured more cheaply* at Sheffield than at Birmingham, and its *river transportation facilities* will enable Sheffield iron to reach the principal markets at a saving of from

**\$2.00 TO \$2.50 PER TON.**

The quality of the iron produced is pronounced by consumers to be the best from any furnace in the South. Stove Works, capacity fifty stoves per day, now in operation. A first-class daily newspaper is regularly issued. Furniture Factory, Bottling Works, Bakery, Dummy Street Railroad, a 90-inch Morse Cotton Compress, Electric Lights, Agricultural Implement Works, 3 Steam Brick Works, 2 Hand Brick Works, 2 Steam Wood-Working Establishments, Water Works, 2 Banks, a Savings Bank, and Steam Job Printing Office already in successful operation, 15-ton Ice Machine just completed and a five-story Hotel, with all modern appliances, now being erected. The Cleveland Hotel, Park House and numerous boarding houses furnish accommodations to travelers; Paint Works nearing completion. Other manufacturing establishments under consideration, among them a large Cotton Mill soon to be commenced.

**Good Water. Free Public Schools and Churches. Drainage Excellent.**  
HEALTH AND CLIMATE UNSURPASSED.

**Splendid Opening for Men of Push and Energy. No Better Point for Profitable Investment. No "OLD FOGY" Element Here.**

**SITES FOR MANUFACTURING ENTERPRISES,**  
**And for Free Public Schools and Churches**  
**Donated by Sheffield Land, Iron & Coal Company.**

Population January 1st, 1887, 700; August 21st, 1887, by actual count, 2,583. Increase of population, 300 per cent. in eight months, and only limited by accommodations. Present estimate (August, 1888) fully 3,500.

Three years ago the site of Sheffield was cultivated as corn and cotton plantations, and was without a railroad. Numerous two and three-story brick business houses, and one and two-story dwellings have been, and are being erected. The class of buildings will compare favorably with those in cities of 20,000 inhabitants.

**LIMESTONE** of excellent quality for *fluxing iron* in unlimited quantities at the furnaces' sites. First-class building stone and brick clay abundant. Rich and extensive deposits of *brown hematite iron ore* within twenty miles, along the lines of two Sheffield railroads, which, by actual results in the furnaces, yield above 50 per cent. metal. Iron of high grade is being made with a pound of coke to a pound of metal—a result never before accomplished with Southern ores and coke. The Sheffield & Birmingham Railroad runs through the heart of the *Warrior Coal Fields*, which abound in first-class *coking, steam, gas and grate coal*. Timber is abundant and cheap.

The *Memphis & Charleston Railroad*, *Sheffield & Birmingham Railroad* and *Nashville, Florence and Sheffield branch* of the *Louisville & Nashville Railroad* are now in operation into Sheffield. Surveys of three other railroads have been recently completed to Sheffield, which will soon be the *best combined river and railroad transportation center* in the South.

Every merchant and every established manufacturing enterprise is doing a profitable business. *More are needed.* For further information address

WM. L. CHAMBERS, Vice-President and Manager,

**SHEFFIELD LAND, IRON & COAL COMPANY, - - - SHEFFIELD, ALA.**



# ROME, GA.

OF all the growing cities in the growing South, Rome presents the greatest opening for money-making investments. With surrounding fields as rich as the lands of Goshen, with exhaustless deposits of brown and red Iron Ores and Manganese immediately at hand on all sides, with mountains of Marble and Limestone coming right up to the city, with an abundance of the best Coal easy of access, areas of untouched forests, and with seven railroad outlets and two navigable rivers, Rome stands, in natural advantages, pre-eminently above any other proud and pretentious city within the limits of this proud and ambitious commonwealth.

## THE HEALTH OF ROME IS UNSURPASSED.

*THE UNUSUALLY LOW DEATH RATE IS A PHENOMENON,  
STANDING WITHOUT A PEER AT 8.40 PER THOUSAND.  
NOT ONE CASE OF CATARRH OR CONSUMPTION EXISTS OR  
EVER ORIGINATED WITHIN HER LIMITS.*

Rome has 12,000 inhabitants, has invested in colleges and school buildings about \$300,000; in church building over \$100,000; in her new hotel \$125,000; in the dummy line, just completed, over \$50,000. Her manufactories employ 800 hands, with other enterprises now going up. Her system of water-works and sewerage is unsurpassed. The city is lighted with gas, and negotiations for an electric light plant are now pending. The highways leading to the city are all well macadamized. The Post-office Department has recently made Rome a free postal delivery office. The annual business of the city is about \$12,000,000, with the trade constantly increasing. The yearly range of temperature at Rome, between the average highest and lowest, is about 84 degrees; the mean temperature is 60.6 degrees. About seven months intervene between the first and the last killing frosts of the year. There is no better society to be found anywhere.

The Rome Land Company (J. W. Rounsaville, President, T. F. Howell, Treasurer, and J. L. Bass, Secretary and Business Manager) will donate ample grounds to, and otherwise aid, any worthy manufacturing enterprise that may locate here.

Send for circulars and pamphlets.



# DECATUR, ALA.

**POPULATION.**—In March, 1887, 1,200; in July, 1888, 7,000; an increase of over 500 per cent. in sixteen months.

**TRANSPORTATION.**—Thirty navigable rivers will be accessible by steamers from the wharves after the completion of the government works at Mussel Shoals, on the Tennessee river, in 1889. Two trunk lines of railroad are in operation at Decatur—the Louisville & Nashville, and the East Tennessee, Virginia & Georgia systems; and two more are in course of construction.

**MANUFACTORIES.**—There are already in operation, or nearly completed, forty manufacturing enterprises that will employ at least 3,500 skilled workmen. These will warrant a population of 20,000 in the near future.

**HEALTH STATISTICS.**—Death rate last year only 11 per 1,000 among the whites.

**IRON.**—The best grades of charcoal pig iron can be manufactured here at a cost not to exceed \$11.50 per ton.

**COAL.**—Coal for manufacturing purposes is now delivered in Decatur, by rail, for \$1.60 per ton. In a few months the mines up the river will deliver coal for about \$1.25 per ton.

**TIMBER.**—The finest timbers in the world are on the banks of the Tennessee river, adjacent to Decatur. Decatur is one of the largest hard wood producing centers in the South.

**SCHOOLS AND CHURCHES.**—Good school and church facilities are here already.

**FARMING LANDS.**—Decatur is the center of one of the finest agricultural regions in the South. The Tennessee valley produces all kinds of small grain, potatoes and fruits, as well as products characteristic of the South, such as cotton, tobacco, etc.

## Review of Decatur's Growth up to July, 1888.

The following enterprises have been located in Decatur and New Decatur, Ala., since February 1, 1887, (with few exceptions) and are in full operation, except where otherwise stated:

1. The Decatur Land, Improvement and Furnace Company was organized on the 11th day of January, 1887, and has laid out the town adjoining Decatur, known as New Decatur.
2. The Louisville & Nashville Railroad Company are now (July, 1888), completing their extensive new shops for the manufacture and repair of cars and locomotives; also roundhouses, etc., the whole covering 57 acres. It is estimated that these shops will employ 1,500 men.
3. The United States Rolling Stock Company are moving their extensive car shops from Urbana, Ohio, to Decatur, where they are putting up new works, covering 49 acres, for the manufacture of every description of cars. The machinery will be in place by September, 1888. The company will employ 500 men at first, and eventually 1,000.
4. The Decatur Charcoal & Chemical Works, running 48 ovens of a capacity of 55 cords of wood each, each cord producing two gallons of wood alcohol, 50 bushels of charcoal and 125 pounds of acetate of lime. This plant has a capacity to treat about 50,000 cords of wood per annum.
5. The American Oak Extract Company, the largest plant of the kind in the world, consuming 100 cords of wood daily in the manufacture of tanning extract. The plant is now being increased by one-third.
6. A 70-ton Charcoal Iron Furnace, nearly completed and ready for operation, built by Gordon, Strobel & Laurean, of Philadelphia, on the latest improved designs. Cost \$111,000.
7. The Decatur Iron Bridge Construction Company, an immense plant with admirable machinery for building every description of railroad and other iron bridges.
8. The Ivens & Son Machine Company. Building (brick) 280 feet by 100. Manufacture boilers, engines, etc., and do all kinds of foundry work.
9. Cotton Compress (Morse, 90 inch.) built by Steers & Co., of New Orleans. Cost \$75,000, completed. The buildings are of brick and iron with stone foundation and have the largest storage capacity in the South.

10. The Decatur Car Wheel & Manufacturing Company. Capacity, 100 wheels per day at present; will be increased as fast as possible, as the company cannot now supply their orders.

11. Southern Horseshoe Nail Factory. These extensive works are being constructed, and will shortly be in operation.

12. Decatur Waterworks (both direct pressure and Holly system) now being constructed by Howland & Ellis, of Boston, Mass. There will be 38 miles of pipe, of which over one-half are laid already. The water will be turned on about September next, and Decatur will have an unrivaled water supply.

13. Moulthrop & Stevens' mammoth brick yard, occupying over 7 acres and employing 50 men, their steam machinery having a capacity of 75,000 brick per day. There are five other brick yards in Decatur, and brick can be furnished at the present time at from \$5 to \$6 per thousand.

14. H. S. Freeman's lumber mills and lumber yard. Daily capacity of mill 15,000 feet. Handles 2,500,000 shingles yearly, besides laths.

15. Arantz Brothers' saw mills and lumber yards. Operate 3 band-saws. Daily capacity of their mills 60,000 feet.

16. Decatur Lumber Company's saw mill, planing mill and dryer. A very large establishment.

17. Berthard & Company's sash, door and blind factory.

18. The Hoosier Mills & Building Company.

19. The Southern Lumber Company. Make sash, doors and blinds.

20. J. D. Jervis & Company's extensive factory for sash, doors, blinds, stairs and hardwood finish.

21. Decatur Builders' Supply Company's lumber yards and planing mills.

22. Decatur Artificial Ice Company; capacity 6 tons daily, to be increased shortly to 15 tons.

23. Decatur Cornice & Roofing Company; manufacture galvanized iron cornices and iron and tin roofing.

24. The Decatur Street Railway, running cars over 3½ miles of track. Will have 2½ miles more completed shortly. Is equipped with new rolling stock.

25. The Decatur Telephone Company, operating over 80 stations.

26. The Decatur Electric Light Co., running 30 arc lights (Brush system).

27. Grant & Company's furniture factory.

28. Decatur Building Association.

29. Bucheit's Bottling Works.

30. Decatur Printing Company.

31. Artificial Stone Works.

32. Decatur Plumbing & Supply Company.

33. Alabama Lumber & Fruit Package Company.

34. Decatur Carriage Company.

35. First National Bank. Paid up capital \$100,000.

36. Exchange Bank of Decatur. Capital \$100,000.

37. One daily and two weekly papers.

38. The new "Tavern" Hotel, in full operation, owned by the Decatur Land Improvement & Furnace Company, delightfully situated on their own grounds, magnificently furnished by the Robert Mitchell Furniture Company of Cincinnati, Ohio, with room accommodations for at least 125 guests. There are five other hotels in Decatur.

39. The Decatur Land, Improvement & Furnace Company's incandescent electric plant, furnishing lights to the "Tavern," also to stores, offices and private dwellings.

A block to contain an opera-house, stores and offices, is now being built by a joint stock company at a cost of \$60,000.

The Louisville & Nashville Railroad Company handle daily in their depot yards 640 cars, 360 going South and 280 North; employ 85 men, and pay out to employees \$6,000 monthly.

The East Tennessee, Virginia & Georgia Railway Company handle in their yards 150 to 200 cars, employ 14 men, and pay out in wages \$720 per month.

In March, 1887, the number of inhabitants in Decatur was 1,200; in March, 1888, 7,000 in Decatur and New Decatur. Since January, 1888, there have been over two hundred houses erected; many of them are substantial brick business houses.

The Decatur Land, Improvement & Furnace Company is offering most favorable terms to parties who will purchase lots for the purpose of building homes.

The capital stock of the company, by retirement of the treasury stock, is reduced to 50,000 shares, or \$5,000,000, of which 45,659½ shares have been issued and are now outstanding. It is largely held as an investment by small holders scattered through different States, very many of whom have also bought property in Decatur, and by persons engaged in business and various occupations in Decatur.

The strong financial condition of the company can best be appreciated by a perusal of its published statements of July 1st, 1888, a copy of which can be obtained from the secretary at New Decatur, Alabama.

For Maps, Illustrated Pamphlets, and Specific Information, address

## The Decatur Land, Improvement & Furnace Company

NEW DECATUR, ALA.



# Anniston

THE CENTER OF  
Iron and Cotton Industry  
AND MINERAL WEALTH.

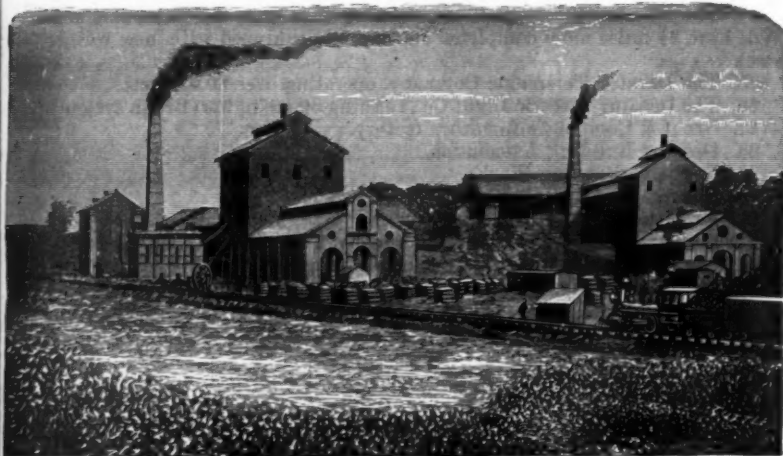
"The Model City of the South."

## IT IS

The Profits of Labor only that can add to the wealth and prosperity of a nation or community. It is this only that can make business successful and profitable, sustain and add to the value of real estate.

## WHERE

Nature's resources are greatest, where nature's capital in rich agricultural lands, and where iron, coal and other useful minerals are most abundant, most accessible and of superior quality for all purposes, there will capital find its safest investment, largest returns and labor reap its richest reward. It is to the Anniston District where the best professional mining engineers and experts of the United States declare the great center of the Iron Industry of the South will drift, where its manufacture will be most permanent and profitable, and where ores in the greatest abundance and accessibility exist, and where they will be most easily mined, that this applies.



WOODSTOCK FURNACES—ANNISTON.

## The Development of the Past Fifteen Years

Confirms all this, and every year convinces the experts of the correctness of their judgment. It is no longer opinion based on scientific and practical education; it is a fact that is clearly and successfully demonstrated, so that the visitor to the Anniston District can see at every step. The four iron furnaces that have been so long and successfully operated, and the new plant now being erected, and rapidly approaching completion, which will be capable of producing one hundred thousand tons of pig iron a year, demonstrate that

## NOWHERE ELSE IN THE SOUTH

Has the iron industry been so profitable and so successful, or been established on so permanent a basis, and of no district is this so universally conceded by all, while nowhere else have arrangements been perfected and already established on so complete a scale to work the crude iron into higher branches of manufacture to increase its value, and to bring into the district the profits of skilled labor. THE GREAT CAR WHEEL WORKS OF NOBLE BROS. & CO., their rolling mill and steam forge and machine shops, and the Alabama Car Works, have been absorbed by the

## UNITED STATES ROLLING STOCK COMPANY,

With a capital of \$4,000,000, for the purpose of adding to and enlarging the entire plant to build TWENTY CARS A DAY. Everything that goes into the creation of a car, except the tin for the roof and the wire nails, will be created from Anniston's crude material by her labor and skill. Fifty tons of wheel iron will be made into car wheels daily, twenty tons into car axles, fifty tons of pig iron into car and other castings, and fifty tons into bar iron and bolts, making nearly ten thousand dollars per day added to the wealth of the country by profitable labor converting nature's capital to the use of man. This company have a capital of \$4,000,000, and their Anniston works will represent a cash outlay of \$1,000,000. One thousand skilled mechanics will be employed as soon as the great enlargements under way can be completed.

## THE STEEL BLOOMARY

Consumes and increases the value of twenty tons of pig iron per day, while the Pipe Foundry converts to the use of man TWO HUNDRED TONS OF PIG IRON PER DAY in one of the largest and best planned and most convenient labor-saving works on this continent. The Foundry of Murray & Stevenson, Engine and Machine Works of Pinder & Co., and Boiler and Sheet Iron Works of J. & D. Noble, all add to the consumption of crude material by the creation of finished work.

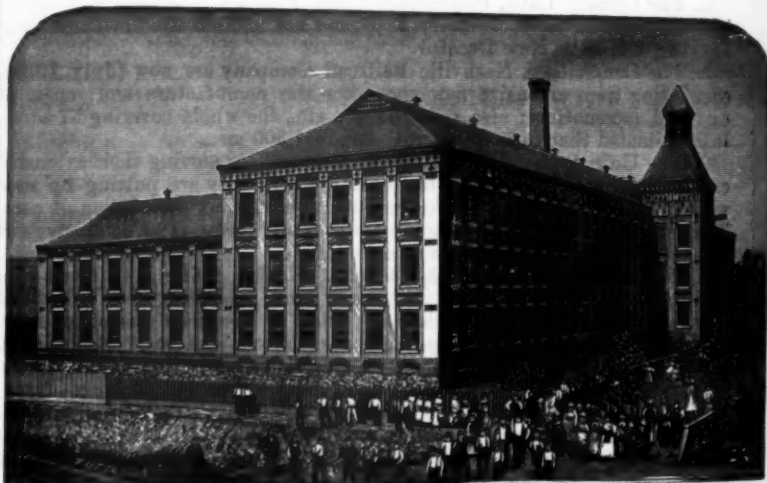
## NOR IS IT TO IRON ALONE

That Anniston relies for increase of wealth and population. The Cotton Factory, with eleven thousand seven hundred spindles and three hundred and seventy-five looms, employing over three hundred and fifty operatives, adds greater value to the products of agriculture by converting six thousand bales of cotton into cotton cloth. The immense ninety-inch Morse Cotton Compress, with its brick warehouses, is fast making Anniston a cotton market and commercial center, and aiding its wholesale and retail merchants to extend and hold the trade of the country tributary to Anniston that its system of railroads has opened to them. The Georgia Pacific, the East Tennessee, Virginia & Georgia Railroad systems,

## Give Direct Communication and Through Rates

To all parts of the country, while the Anniston & Atlantic Railroad, built by Anniston capital to open up new agricultural and mineral resources, gives Anniston, by connection with the Central of Georgia system, communication with the Atlantic sea coast and the new Anniston & Cincinnati Railroad, built and owned by Anniston citizens, opens up new resources and connections, and a shorter line with the great Northwest.

The proposed extension of the Anniston & Atlantic Railroad to Blocton will give another and shorter line to the great Cahaba Mines, producing the very best coal for domestic and manufacturing purposes in the South. Forty thousand acres of these coal lands, upon which a million and a half dollars have been lately spent in opening new mines and building several hundred coke ovens, ALL OWNED AND CONTROLLED BY ANNISTON CAPITAL, and developed to mine and manufacture three thousand tons of coal and coke per day, secures to Anniston for generations to come a full and certain supply of cheap fuel for all her industries, operated where a rich agricultural country can feed a manufacturing and commercial people, and where the



ALABAMA MANUFACTURING COMPANY'S COTTON MILL—ANNISTON.

## Best, Healthiest and Most Invigorating Climate in the World,

With mountain air and pure water, and an elevation of nine hundred feet above tide water, insures the health and comfort of the workman and his family; where health and comfort stimulate and lighten labor, and secure to it and its industries the reward due to both. It is these advantages which have been given by nature that enabled Anniston's citizens to create her past and present prosperity, and which secure her future. It is that they may participate in and avail themselves of these advantages that Anniston invites NEW CAPITAL AND TALENT AND ENERGY from all sections. We invite all to come and see, and on the spot to judge for themselves of Anniston's great resources and possibilities. The comfort and quiet of the famous Anniston Inn will make a visit to our city a treat and pleasure. Any information, attention and courtesy will be given and shown by addressing or applying to the

ANNISTON CITY LAND CO., Anniston, Ala.



# CONSTRUCTION DEPARTMENT

**WE PUBLISH, every week, a list of every new factory, of whatever kind, projected anywhere in the South; every railroad undertaken, and every mining company organized. This information is always fresh, and, by enabling manufacturers to correspond with the projectors of such enterprises before their supplies of machinery have been purchased, is of great value. Manufacturers will find it to their interest to read this department carefully each week.**

## ALABAMA.

Bessemer—Electric Light Plant.—The Bessemer Electric Light Co. will put in additional power. Their building has been completed.

Bessemer—Iron Mine.—The De Bardeleben Coal & Iron Co. have opened a lead of ore, 5 miles from Bessemer, 20 feet in thickness. It will be developed.

Birmingham—Publishing.—Milton O. Smith will publish a daily paper.

Birmingham—Building.—W. S. Smith, Morris avenue and Twenty-third street, will receive plans for the rebuilding of the Judson Institute at Marion, lately mentioned as burned.

Birmingham—Mineral Lands.—H. W. Ne Smith have closed a contract for the sale of 100,000 acres of mineral lands in Alabama to a syndicate of capitalists of Manchester, Liverpool and London, England.

Birmingham—Nail and Rolling Mill.—Steine & Foss contemplate, it is reported, building the nail and rolling mill lately mentioned. Machinery has not been purchased.

Birmingham—Iron Furnace.—The foundation of the iron furnace recently reported as to be built at Gate City, by a company being organized by Fred Sloss, is reported as being laid.

Cuba—Coal Mine.—Col. W. Bell contemplates developing a coal mine.

Dayton—Railroad.—The Dayton & Faunsdale Railroad Co., reported last week, contemplate extending their road beyond Dayton, instead of beyond Faunsdale. Their road is now being built.

Decatur—Buildings.—The Mineral Land Co. will, it is said, soon commence work on another block of buildings.

Decatur—Water Works.—Howland & Ellis have resumed work on the water works previously mentioned as being built by them.

Decatur—Machine Works.—The Louisville & Nashville Railroad Co., who are building immense machine works as previously reported, will soon commence putting in machinery.

Demopolis—Ice Factory.—John C. Webb will build the ice factory lately mentioned, and has laid foundation for same.

Fort Payne—Coal Mines and Coke Ovens.—The Fort Payne Coal & Iron Co., lately reported as organized with \$5,000,000 capital stock and as purchasing and to develop 32,000 acres of mineral lands, &c., will develop coal mines first and build coke ovens. 100 ovens are reported to be constructed first, to be followed by others.

Georgiana—Tannery.—R. B. Mills has leased a tannery and will operate it, and add the manufacture of shoes and harness.

Mobile—Lumber Mill.—The Mobile Shingle & Manufacturing Co. has been organized to succeed Allman & Ladd. G. C. Clarke is president.

Mobile—Paper Mill.—Joseph Hodgson contemplates building a small paper mill and wants estimates as to cost of machinery.

Mobile—Publishing.—W. S. Copley and Lester Winfield are arranging to publish a paper.

Mobile—Land.—The Kansas City & Mobile Trust & Investment Co., John H. Douglas, of Lamar, Mo., secretary and general manager, have purchased 710 acres of land near Mobile, and will develop and lay out a town. Surveys are now being made. Office is in Bank of Mobile Building. Capital stock is \$100,000.

Mobile—Brewery.—Carl Lang, F. S. Parker and Rudolph Benz and others are organizing the Mobile Brewing Co., capital stock \$100,000, to start a beer brewery. They have secured buildings, and will probably soon begin making alterations, &c., for the reception of machinery.

Montgomery.—A bill has been introduced in legislature to authorize Troy to issue \$20,000 of bonds to build schools.

Montgomery—Iron Works.—The Montgomery Iron Works will put in some new machinery which they want to purchase.

Montgomery—Gas Works.—The Montgomery Gas Co. will hold a meeting on January 14 to consider (1) the issuing of not more than \$250,000 of bonds, and (2) increasing their capital stock not more than \$200,000 for the purpose of enlarging and improving their works.

Montgomery—Railroad.—The Montgomery & Sylacauga Railroad Co., lately mentioned as incorporated, expect soon to make surveys for their road, which will extend from Montgomery to Sylacauga, 60 miles, and commence work early next year. B. K. Collier can give information.

Morris—Publishing.—The Morris Publishing Co., reported last week as chartered at Birmingham, will publish a paper at Morris. Capital stock is \$1,500. G. W. Ellis is secretary.

Oxanna—Houses.—The Oxanna Building & Loan Association have let contract for 10 houses to be built within 60 days.

Plantersville—Lumber Mill and Railroad.—Tibbets & Son have organized as the Tibbets Lumber Co., and are building a three-mile railroad, 41½-inch gauge. They want to purchase an engine.

Rock Run—Furnace.—The report last week that W. C. Amos, of Ironton, O., has purchased the Stonewall Iron Works property is incorrect.

Selma—Residence.—W. P. Armstrong is having plans prepared for a fine residence.

Sheffield—Iron and Brass Works.—The Globe Iron & Brass Works will erect works at once. J. J. Traveres can give information.

Tuskaloosa—Coke Ovens.—Efforts are being made to raise \$100,000 to build coke ovens.

## ARKANSAS.

Arkansas City—Residence.—A. A. Newman will build a residence to cost \$20,000 and has plans prepared.

Arkansas City.—Negotiations are pending for the establishment of several enterprises.

Batesville—Flour Mill.—The 50-barrel roller mill mentioned last week as being built by John B. Wolf will be owned by M. McClure.

Batesville—Water Works.—A company has been organized to build water works. James Larwen is secretary and treasurer.

Brinkley—Railroad.—It is stated that Post, Martin & Co., of New York City, will contract to build the Louisiana, Arkansas & Missouri Railroad, from Brinkley, Ark., to Monroe, La., previously reported. William

Black and others have the contract to build the road from Brinkley to Indian Bay.

Clarendon—Ice Factory.—There are prospects of an ice factory being built soon.

Fayetteville—Machine Shop.—The board of trustees of the Arkansas Industrial University contemplate enlarging their mechanical department.

Fort Smith—Gas Wells.—The Fort Smith Natural Gas & Power Co., reported last week as to sink another gas well, will sink quite a number of other wells.

Hamburg—Ginnery.—J. E. Kittrell has erected a cotton ginnery near Hamburg.

Helena—Hedges.—The Eastern Arkansas Hedge Co., capital stock \$6,000, has been organized to build hedge fences, with C. R. Croledge as president.

Helena—Saw Mill.—A saw mill will probably be erected to be run in connection with the Batchelder Egg Case Factory.

Little Rock—Furniture Factory.—The Buddenberg Furniture Co. will probably enlarge their factory.

Little Rock—Furniture Factory.—A company is reported to be organized soon after January 1, principally by parties in Grand Rapids, Mich., to extensively manufacture furniture.

Little Rock—Soapstone Mining, &c.—The Arkansas Soapstone Manufacturing Co., capital stock \$500,000, is being organized to mine and manufacture soapstone. E. J. Payn can give information.

Milner—Lumber Mill.—The American Lumber Co. are reported as putting some new machinery in their lumber mill.

Pine Bluff—Wood-working Factory.—Mr. Wynne and others, of Kansas, have been prospecting with a view to starting a wood-working, carriage and wagon factory.

Rogers—Street Railway.—A company is being formed to build a street railroad to the Electric Springs.

Stuttgart—Street Railroad.—A street railroad is reported to be built next summer.

## FLORIDA.

De Land—Engine and Boiler-room.—An engine and boiler-room, 18x29 feet, is being built at the De Land University.

Key West—Building.—McDermott & Higgs, lately reported as receiving contract to erect the building for the Government, have failed to give bond, and the contract has been given to Augusta Del Pino at \$72,555.

Jacksonville—Bridge.—The Jacksonville Bridge Co. have, it is stated, let the contract for building their bridge across the St. John's river, previously reported. It is to be an iron bridge, with stone bulkheads, and will be completed by next June.

Ocala—Well.—W. A. Jeter, of the Ocala Water Works, has contracted to have an artesian well sunk 2,000 feet deep.

Osteen—Mill.—J. R. Houston has moved his mill from Osteen to the east side of Deep Creek.

Palatka—Schools.—The city contemplates building two schoolhouses to cost about \$15,000. The mayor can give information.

Sanford—Publishing.—Edwards, Street & Co. have started the publication of a daily paper called the Mascotte.

St. Andrew's Bay—Mill.—Mr. Gay will move his mill to some point in Georgia.

St. Andrew's Bay—Railroad.—The feasibility of building a railroad to Chattahoochee Junction is being considered.

San Antonio—Cigar Factory.—A cigar factory has been started by Frese & Co.

Tampa—Street Railroad.—The Tampa Street Railroad Co. have purchased a dummy engine for their road.

Tarpon Springs—Ice Factory.—Machinery has been purchased for the ice factory previously reported as to be built. Col. Keenay can give particulars.

Winter Haven—College.—A college is to be built. W. T. Cotter, of Sanford, has the contract.

## GEORGIA.

Atlanta—Granite Quarries.—The Venable Granite Co. expect to enlarge operations at their quarries.

Atlanta—Water Works.—The increasing of the water supply of the city is being agitated, as the present limit has been reached. If it is decided to do anything soon the mayor can give particulars.

Atlanta—Dummy Railroad.—A dummy railroad is reported to be built. If correct, the East Atlanta Land Co. can probably give information.

Atlanta—Medicine Factory.—Dr. H. W. Ewbank, of Spartanburg, S. C., contemplates starting, it is said, a medicine factory.

Atlanta—Saw Mill.—The Atlanta Glass Co., lately mentioned as to enlarge their works, will put in a saw mill.

Atlanta—Market-house.—George Winship, R. B. Ballock, Jacob Elias and others have chartered the Gate City Market Co., capital stock \$100,000.

Atlanta—Bills have been introduced in the legislature to incorporate the Milledgeville & Asylum Dummy Line Co.; the Swainsboro & Red Bluff Railroad Co.; the Marietta Street Railroad Co., and the Griffin Street Railroad Co.; and to authorize Fort Gaines to issue \$5,000 of bonds to repair the Chattahoochee river bridge.

Athens—Ice Factory.—J. H. Rucker, previously mentioned as to build an ice factory, is negotiating for machinery of large capacity.

Bainbridge—Hotel.—A large hotel is projected.

Bainbridge—Railroad.—John M. Brown & Co., of New York, who have the contract to build the Alabama Midland Railroad, as previously reported, have commenced work on road, and will soon commence work on bridge over Flint river in Alabama. 25 miles are contracted to be completed by February 15.

Banning—Pulp Mill.—M. R. Wilkinson has purchased the Ames Mill near Banning, and is making repairs and will, put in machinery, which has been purchased, to start a pulp mill. He will run it in connection with his paper mill nearby.

Blue Ridge—Railroad.—The Marietta & North Georgia Railroad Co. (office, Marietta) have commenced work on their branch road, previously reported as to be built from Blue Ridge to Dacktown.

Brunswick—Building.—The Oglethorpe Bank, previously mentioned as to erect a bank building, have commenced tearing down old buildings on site. It will be of brick, three stories, 30x90 feet, and will cost about \$30,000.

Brunswick—Publishing.—J. E. Da Bignon, A. J. Crovatt and others have incorporated the News Publishing Co., capital stock \$10,000.

Brunswick—Dummy Railroad.—Frank D. Aiken, J. S. Thomas and R. R. Hopkins will incorporate the Turtle River Railroad Co., with a view to building the dummy railroad lately reported.

Cartersville—Furnaces.—The Cartersville Steel & Furnace Co. have not awarded the contract for building their two furnaces, as stated last week. They are still receiving bids.

Cedartown—Water Works.—The mayor will receive propositions for the construction of water works.



**Columbus—Railroad.**—Surveys are being made for a railroad northward from Columbus, probably for the contemplated extension of the Chattanooga, Rome & Columbus Railroad from Carrollton to Columbus.

**Dover—Railroad.**—A railroad is reported to be built from Dover to Statesboro at a cost of about \$19,000. Augusta parties will be interested.

**Duke—Planing Mill.**—H. C. Williams & Co. are building a planing mill. Machinery is reported as purchased.

**Emerson—Paint Works.**—It is reported that paint works have been started. If true, John P. Stegall can give information.

**Fayetteville—Tannery.**—W. P. Redwine will build a tannery.

**La Grange—Marble and Granite Works.**—H. H. Wilcox, of Greenville, S. C., has been prospecting with a view to starting marble and granite works.

**Macon—Railroad.**—The Macon & Covington Railroad Co. will, it is said, build their contemplated road to Griffin at once.

**Marietta—Marble Works.**—The American Marble Co. contemplate making extensive additions to their works.

**Marietta—Electric Light Plant.**—Negotiations are being made for the erection of an electric light plant to cost about \$12,000. The mayor can probably give information if anything is done.

**Myrtle—Wood-working Factory.**—D. H. Houser has started a factory for manufacturing hames, hoe handles, crate slats, etc.

**Perry—Cotton Factory.**—Dennard & Hughes will add a few cards and spindles to their Houston factory.

**Rome—Electric Light Plant.**—An electric light plant will probably soon be erected.

**Rome—Foundry.**—Davis & Cummings will build an iron foundry on the lands of the Rome Land Co. They will make a specialty of mill machinery.

**Rome—Iron Furnace.**—J. W. Rounsaville, T. F. Howell, W. P. Simpson and others are organizing a stock company to build a 100-ton iron furnace. They expect to commence work early after January 1.

**Rome—Machine Works.**—The Rome Foundry & Machine Works will put in additional machinery, which they want to purchase, namely: one second-hand planer, 32x32 inches x 7 feet; one new shafting lathe, 20-inch x 20 feet between centers, with shafting turning attachment; one new lathe, 24-inch swing x 8 feet between centers; one suspension drill press, one foundry blower to melt 4 tons per hour, and one forge blower to run 2 or 3 forges.

**Rome—Sash, Door and Blind Factory.**—J. B. Patton will remove his sash, door and blind factory to West Rome. He will increase its capacity.

**Rome—Wagon Factory.**—A stock company is being organized to start a wagon factory.

**Rome—Rolling Mill.**—William Nevigold, previously mentioned as to build a rolling mill, is in Rome, and will probably arrange to soon commence work on the plant.

**Savannah—Sewerage System.**—The city council have adopted the plans recommended by W. J. Winn, city surveyor, for the drainage of the city, previously reported. Thirty miles of sewers are to be laid at an estimated cost of \$348,000. Work on at least part of the work will probably soon be started. The mayor can give information.

**Savannah—Moss Factory.**—J. Gardner, of Elgin, Ill., and J. Baker, of Gloversville, N. Y., are prospecting with a view to organizing a \$25,000 stock company to start a moss factory. A factory with a daily capacity of one ton is stated to cost about \$8,000.

**Savannah—Street Railroad.**—A bill will be introduced in the legislature at Atlanta to incorporate the Enterprise Street Railroad Co.

**Savannah—Building.**—The Chatham Artillery contemplates soon letting the contract for their club building, previously reported. It will cost about \$10,000.

**Stevens' Pottery—Jug Factory.**—Stevens Bros. & Co. will add to their pottery and sewer-pipe works the manufacture of jugs.

**Tallapoosa—Saw Mill.**—It is reported that the Poosa Manufacturing Co. are adding a saw mill to their sash and blind factory.

**Tate—Marble Quarries.**—The Georgia Marble Co. are putting additional machinery in at their quarries.

**Thomasville—Planing Mill, &c.**—A planing mill and variety works will be built by Reynolds, Hargrove & Davis, of Orlando, Fla.

#### KENTUCKY.

**Ashland—Iron and Coal Mines.**—It is stated that Eastern parties will develop the iron and coal lands of the Sandy Valley as soon as the value of the ore is determined by actual furnace test. Col. Northrop can probably give information.

**Beattyville—Railroad.**—The Richmond, Nicholasville, Irvine & Beattyville Railroad Co. have commenced work on their road, previously mentioned.

**Beattyville—New Town.**—The Three Forks Improvement Co., mentioned last week as to soon commence making improvements, are now having their new town laid off.

**Crittenden County—Ochre Mines.**—T. T. Murphy and M. C. O'Hara are making arrangements to develop ochre mines.

**Clay City—Iron Furnace.**—It is reported that C. W. Russel, of Red River Iron Works, contemplates building an iron furnace. He has been running the Red River Furnace at Red River Iron Works.

**Danville—Railroad.**—J. W. Proctor, J. A. Check, W. J. Lyle and others are interested in the railroad lately reported as projected to be built from Danville to the Louisville & Nashville Railroad, near Shelby City.

**Frankfort—Railroad.**—The Home Construction Co., reported last week as organized to build the Kentucky Midland Railroad, have contracted to build said road from Frankfort to Paris, with the option of building east of Paris.

**Frankfort—Boot and Shoe Factory.**—Hugh McKenzie contemplates starting a boot and shoe factory to employ from 50 to 100 hands.

**Frankfort—Road.**—Proposals for constructing one mile of road will be received until January 1 by John C. Russell.

**Hartford—Flour Mill.**—John R. Phipps & Co. have lately remodeled their flour mill to the roller system. They are now putting in some flour dressers and making other improvements. Capacity of mill is 75 barrels daily.

**Hartford—Saw Mill.**—Potter & Condit are overhauling their saw mill, and will add planing machinery.

**Henderson—Bridge.**—The Ohio Valley Railroad Co., previously mentioned as to extend their railroad to Evansville, Ind., have made a proposition for building a bridge across the Ohio river.

**Lawrenceburg—Railroad.**—The Louisville Southern Railroad Co. (office, Louisville) will, it is said, build at once their road from Lawrenceburg to Lexington, 20 miles.

**Leitchfield—Flour Mill.**—Gardner & Bro. contemplate remodeling their flour mill to the roller system.

**Louisville—Bakery.**—The Louisville Steam Bakery have lately erected a three-story building, 40x90 feet, for their bakery.

**Louisville—Distillery.**—J. G. Mattingly & Son have started work in their distillery, previously mentioned. They expect to increase their capacity from time to time.

**Louisville—Armory.**—The Louisville Light Infantry and several beneficial societies contemplate organizing a stock company to erect a large armory building.

**Louisville—Building.**—The College of Pharmacy will erect a new building to cost about \$10,000. It will contain laboratories, etc. Work will be started about March.

**Middlesborough—Iron Furnaces.**—The American Association, Limited, A. A. Arthur, of Knoxville, Tenn., general manager, are considering the proposition for the erection of an 80-ton iron furnace, and are negotiating the organization of a stock company to build 4 other iron furnaces.

**Middlesborough—Brick Works.**—The American Association, Limited, A. A. Arthur, of Knoxville, Tenn., general manager, will establish or have established by next May works for manufacturing common and fire-brick.

**Paducah—Rolling Mill.**—St. Louis (Mo.) parties have made a proposition to move their rolling mill to Paducah if a bonus of \$20,000 is raised. Will employ 800 hands if moved. If anything is done the Paducah Coal, Iron & Land Co. can probably give information.

**Pineville—Railroad.**—The contract to build the railroad for the Pine Mountain Iron & Coal Co. from their coke ovens to the Louisville & Nashville Railroad, previously mentioned, has been awarded to Nichols & Davison.

**Pineville—Iron Mill.**—The Pineville Coal, Iron & Land Co. are negotiating with parties for the erection of a mill for manufacturing Russian sheet iron and ordinary block sheet.

**Pineville—Planing Mill.**—Andy Johnson and Crow Carr will build a planing mill, 50x75 feet.

**Richmond—Flour Mill.**—H. J. Young, W. T. Ashly and others are building the 50-barrel roller mill reported last week.

**Waco—Pottery, Pipe and Porcelain Works.**—The Eureka Mining Co. contemplates starting the works for manufacturing pottery, sewer pipe and porcelain, mentioned last week. They have purchased some lands and leased some.

#### LOUISIANA.

**Amite City—Gin Works.**—The Gullett Gin Co. are making some additions to their works.

**Bayou Sara—Railroad.**—The Louisville, New Orleans & Texas Railroad Co. (office Memphis, Tenn.), previously mentioned as purchasing the West Feliciana Railroad and to extend it to their main line, are at work on the extension, which will be 16 miles long. Work will be completed in four months.

**Franklin—Sugar Mill.**—Joseph Brig has lately erected a six-roller sugar mill on his Katie plantation.

**Lake Charles—Water Works.**—The building of water works is being agitated. The mayor can give information if anything is done.

**Monroe—Electric Light Plant.**—An electric light plant is to be erected. The mayor can give information.

**New Orleans—Brewery.**—The Pelican Brewing Co. will shortly put in some additional machinery, which will increase their capacity for brewing from 150 to 300 barrels per diem.

**New Orleans—Canal.**—Isidore Hensheim, H. F. Cottam, G. R. Finlay, H. D. Coleman and others contemplate organizing the Mississippi River & Gulf Canal Co. to build the canal from Mississippi river to Lake Pontchartrain, about 5 miles, previously mentioned.

**New Orleans—Terra-cotta Works.**—A party from California is looking for a site to build terra-cotta works to employ at least 100 hands.

**New Orleans—Saw Mill.**—F. Fischer is building an addition to his saw mill.

**New Orleans—Heating Apparatus.**—The board of administrators of the State Insane Asylum contemplate putting in heating apparatus at a cost of \$5,000.

**New Orleans—Electric Light Plant.**—The Secretary of the Treasury has asked for an appropriation of 3,000 to erect an electric light plant at the United States Marine Hospital.

**New Orleans—Lead and Color Works.**—Henry O. True, William V. Gould and others are directors of the American White Lead & Color Works, reported last week as formed. They will put in machinery at once for manufacturing white lead, putty, colors, &c. Capital stock is \$15,000.

**New Orleans—Soap and Candle Works.**—William Zettmann, manufacturer soap, candles, &c., has received permit to erect new building.

**Plaquemine—Saw Mill.**—The Plaquemine Lumber & Improvement Co. have commenced work on a new saw mill.

#### MARYLAND.

**Annapolis—Electric Light Plant.**—The Annapolis Electric Light Co., previously reported, are ready to receive bids for erecting their building, furnishing machinery, &c.

**Baltimore—Warehouse.**—A five-story brick warehouse will be built on Light street north of Lombard by the Safe Deposit & Trust Co.

**Baltimore—Clubhouse.**—The Maryland Club, who contemplate building a new clubhouse, have optioned a site at Charles and Eager streets.

**Baltimore—Hay Press.**—The Excelsior Hay Co. will put in steam power for cutting and baling hay.

**Baltimore—Steel Manufacture.**—Samuel N. Booth, of Pennsylvania; Samuel B. Cook, William L. Keller, Frank W. Levering and J. Glen Cook, of Baltimore, have incorporated the Booth Iron Mixture Co., capital stock \$125,000, to manufacture, sell and use compounds for improving the quality of steel in any form while in process of being manufactured.

**Baltimore—Fertilizer and Chemical Works.**—Robert S. Bradley and Peter B. Bradley, of Boston, Mass.; Louis F. Detrick, John U. Detrick and William H. Detrick, of Baltimore, have chartered the Bradley Fertilizer & Chemical Co., capital stock \$100,000.

**Baltimore—Buildings.**—George A. Forman will erect 10 three-story houses on First street, 4 on North street and 5 two-story houses on Dare alley near North street; James W. Paca, 6 two-story houses on Boulden alley, and 6 on Division street; Robert Brooks, 13 two-story houses on Bloom street, and 5 three-story houses on Pennsylvania avenue; A. S. Abell estate, a six-story brick warehouse at 318 and 330 West Baltimore street; A. L. Gorter, 5 three-story houses on Mt. Royal avenue, and Willis & Demby, 4 two-story frame houses on Edmondson avenue.

**Cambridge—Packing-houses.**—T. K. Borkley and Simon Hoddinott are improving their oyster packing-houses and properties.

**Chestertown—Basket Factory.**—Wilbur Eliason contemplates adding to his strawboard factory a factory for manufacturing paper baskets. He also contemplates using coal oil instead of coal for fuel.

**Conowingo—Flint Mill.**—Smith & Edge have repaired and improved their flint mill at a cost of about \$1,000.

**Cumberland—Bank.**—The Second National Bank contemplate erecting a new bank building soon.

**Hagerstown—Church.**—The Washington Square M. E. Church will erect a building 70x34 feet, with a 60-foot tower. Samuel McCreary can give information.

**Lonaconing—School.**—A site has been selected for the erection of a school building to cost about \$10,000. David Sloan can give information.

**Lonaconing—Opera-house.**—A stock company is being formed to build an opera-house.



Rockville—Publishing.—Fred Benjamin, of Linden, and others are making arrangements to publish a paper.

Washington, D. C.—Depot.—The improvements to the Baltimore & Ohio Railroad Co.'s depot, lately mentioned, will cost \$15,000. The addition will be of brick.

Washington, D. C.—Buildings.—F. G. Newlands and F. W. Sharon, of San Francisco, Cal., trustees of estate of late ex-Senator Sharon, will build a large number of houses and a large apartment house on land owned by the estate. Buell Price, of New York City, will probably prepare plans.

Washington, D. C.—Railroad.—The contracts for double-tracking the remaining 30 miles of single track of the Metropolitan branch of the Baltimore & Ohio Railroad, mentioned last week, are being let.

Washington, D. C.—Terminal.—The Baltimore & Potomac Railroad Co. are grading and laying tracks at their bridge across the Eastern branch of the Potomac river.

#### MISSISSIPPI.

Bay St. Louis—Brick yard.—Hoffman & Co. have started a brick yard.

Columbus—Depot and Machine Shops.—The Georgia Pacific Railroad Co. (office, Birmingham, Ala.) will build a depot and improve their machine shops.

Enterprise—Cotton Mill.—The Stonewall Manufacturing Co., lately mentioned as ordering some new machinery, have put in machinery and made other improvements costing about \$8,500.

Greenville—Levee.—The contract for building the Longwood hoop levee, about 11,000 yards, has been awarded to C. P. Williams.

Greenwood—Furniture Factory.—The Greenwood Furniture Co. are refitting their factory with new machinery.

Pass Christian—Hotel.—H. F. Blake, of Denver, Col., has leased the Mexican Gulf Hotel and is making improvements. Steam heat will be put in.

Pass Christian—Saw Mill.—C. E. Spence will put in a resaw and two new boilers soon.

Vicksburg—Hotel.—Efforts will be made to organize a stock company to build a large hotel to cost not less than \$100,000. J. P. Roach is interested.

Vicksburg—Tunnel.—It is rumored that the Louisville, New Orleans & Texas Railroad Co. (office, Memphis, Tenn.) will make an open cut of their tunnel south of the city.

#### NORTH CAROLINA.

Charlotte—Flour and Corn Mill.—The Star Mills Co. has been organized, with C. Gresham as president, to build a roller flour and corn mill. The capacity for flour is to be 100 barrels daily. Machinery for manufacturing flour and hominy, grits, pearl meal, &c., is wanted.

Charlotte—Mining Plant.—Parties have purchased and will erect at a gold mine near Charlotte a plant for extracting gold and silver by means of electricity.

Charlotte—Electric Light Plant.—The Charlotte Electric Light Co. have broken ground for an addition to their plant and will add a 125 horse power engine and new dynamo for incandescent lighting at a cost of about \$15,000. They are thinking of furnishing power for small plants. A new company with \$50,000 capital stock is being organized.

Durham—Street Railroad.—The Durham Street Railroad Co. contemplate extending their road.

Fayetteville—Distillery.—J. B. Underhill, reported last week as erecting a turpentine distillery, will manufacture a common varnish in addition to rosin oil.

Fayetteville—Cotton Compress.—Parties will make investigations with a view to the erection of a cotton compress in time for the next crop.

Goldsboro—Water Works.—It is stated that Conway, Kelley & Co., of Lebanon, Ky., have secured a franchise to build water works.

Graham—Canning Factory.—The Curtis Canning Co. will erect a new building and put in steam boiler to increase capacity for manufacturing next season.

High Point—Railroad.—The High Point Randleman, Asheboro & Southern Railroad Co. previously reported as formed to build a railroad from High Point to Asheboro have completed plans for its construction and will, it is said, commence work about January 1. R. P. Dicks, of Randleman, is president.

Lemon Springs—Stone Quarries.—P. Linehan & Co., of Raleigh, have leased and will soon develop the brownstone quarries of John W. Scott, mentioned last week.

Malmö—Terra Cotta and Fire-brick Works and Lumber Mill.—Hansen & Smith, of Wilmington, previously reported as to build terra cotta and fire-brick works, are about commencing work. They will erect a saw and shingle mill also.

Mount Airy—Factory.—J. W. Forkner will probably build a factory or a warehouse.

Mount Ida—Quarry.—A granite quarry is reported to be developed.

Pantego—Railroad.—Mr. Miller has been awarded the contract to complete the Albemarle & Pantego Railroad from Mackey's Ferry to a point near the mouth of Pantego creek, on Pango river.

Raleigh—Hotel.—Mr. Pullen offers to give a site and brick and subscribe \$20,000 towards building a hotel.

Shelby—Water Works, &c.—A bill will be introduced in the next session of the legislature at Raleigh to authorize Shelby to issue bonds to build water works and purchase a fire engine.

Sylva—Kaolin Mine.—J. S. Jarratt, previously reported as to develop a kaolin mine and to erect grinding machinery, will put in 10 grinding machines with a capacity of 40 tons per day of 10 hours, and build an elevated wire cable tram to mines, 2½ miles, &c. Plant will cost about \$40,000. He has organized a \$500,000 stock company. Thomas Bracken, of New York, is president; Mr. Jarratt, vice-president; H. N. Hopper, Brooklyn, N. Y., secretary, and Hugh O'Donnal, of New York, treasurer.

Union County—Gold Mine.—A 40 horse-power boiler, steam hoist and pumping machinery are being erected at the Smart gold mine.

Wilmington—Building.—The contract to erect the government building, previously reported, has been let to William H. Smith, of Marquette, Mich., at \$100,719.

Wilmington—Railroad.—The Ocean View Railroad Co. will be incorporated.

Winston—Tobacco Factory.—A tobacco factory will shortly be started by W. B. Ellis & Co.

#### SOUTH CAROLINA.

Barnwell—Well and Hall.—The town will issue \$6,000 of bonds to sink an artesian well and build a town hall. Contract for well is let. G. D. Bellinger can give particulars.

Charleston—Wharf.—The contract to complete the United States custom-house wharf, previously mentioned, has been awarded to D. A. J. Sullivan at \$129,000. It will take about two years to finish the work.

Charleston—Armory.—The Carolina Rifles have appointed a committee to procure plans, specifications and bids for the erection of their new armory, previously reported.

Charleston—Phosphate Mine.—A phosphate mine on the Milne plantation, in St. Andrew's parish, is to be developed.

Columbia.—Bills have been introduced in the legislature to incorporate the Cheraw &

Barnwell Railroad Co.; the Chester Street Railway Co.; the Land Army Building & Loan Association; the Building & Investment Co., of Columbia; the Wainsboro & Fish Dam Railroad Co.; the Gold Hills Mining Co.; the People's Building & Loan Association, of Sumter; the Rock Hill Real Estate & Loan Co.; the Wilson & Summerston Railroad Co.; the Orangeburg Street Railroad Co., capital stock \$25,000, with J. W. Lowman, D. E. Dukes and others as incorporators; the Palmetto Land, Lumber & Transportation Co., capital stock \$50,000, to build a canal from the Santee river to Winyan bay, 5 miles, with W. N. Jordan and others as incorporators, and the Perpetual Building & Loan Association, of Laurens, with James R. Cooper and others as incorporators.

Georgetown—Distillery.—Moses & Bros. have rebuilt their turpentine distillery reported last month as burned.

Georgetown—Drainage.—The board of health are considering a plan for the drainage of the city.

#### TENNESSEE.

Bellbuckle—College.—The Bedford Normal College has been burned, and will be rebuilt. W. R. Webb can give particulars.

Bryson—Flour Mill.—J. B. Morrell, reported last October as to put roller machinery in his flour mill, will do so next spring. He will want machinery then.

Calhoun—Broom Factory.—A. A. Farington has lately started a broom factory.

Chattanooga—Water Works.—The City Water Co. will soon commence work on their reservoir at Ridgedale, previously mentioned.

Chattanooga—Electrical Railroad.—The Chattanooga & Highland Park Electric Street Railway Co., previously mentioned as to build an electrical street railroad, have, it is stated, adopted the Sprague system and contracted for machinery for their plant. Road is 3½ miles long.

Chattanooga—Timber Lands.—Sheridan, Green & Co. have been negotiating the sale of 200,000 acres of timber lands.

Chattanooga—Buildings.—L. E. & D. P. Montague will erect a block of 4 four-story brick buildings, each 25x125 feet, and have had plans prepared.

Chattanooga—Planing Mill.—W. B. Seymour & Co., who operate a planing mill, have incorporated as the Seymour-Stratton Lumber Co.

Chamley—Nursery.—The Bird, Dew & Hale Co. has been chartered to do a nursery business.

Clarksville—Tobacco Factory.—Emmitt Morrow will build a tobacco factory.

Cleveland—Water Works.—Messrs. Austen & Reed contemplate making a proposition to build water works.

Cleveland—Water Works.—A committee has been appointed to receive propositions from any source for constructing water works. The mayor can give particulars.

Columbia—Plow Factory.—The capital stock of the company reported last week as to be organized by W. R. Craig to manufacture plows and drills will be about \$20,000. They expect to be ready early in the year.

Columbia—Fence Factory.—A factory for manufacturing wire fence has been started.

Columbia—Electric Light Plant.—The report recently referred to that A. C. Green, of Fayetteville, will erect an electric light plant is correct. He is negotiating for machinery, and will furnish power for the wire-fence factory mentioned above.

Columbia—Sewerage System.—A sewerage system is contemplated. The mayor can give information.

Cumberland Gap—Coal Mines and Coke Ovens.—Messrs. Watts Bros. have leased coal lands from the American Association, Limited, A. A. Arthur, Knoxville, general

manager, and will open mines and build coke ovens.

Cumberland Gap—Coal Mines and Coke Plant.—G. R. Eager, of Marietta, Ga., and associates have leased coal lands from the American Association, Limited, of Knoxville, and will open mines and build coke ovens.

Dayton—Coal Lands.—It is reported that coal lands are being leased by parties who will soon develop.

Dayton—Hotel.—John McNemar and W. C. Gardenhire will, it is stated, build a large three-story brick hotel, 160x160 feet.

Hartsville—Flour Mill.—A. S. Reeves is building a roller flour mill. The capacity will be about 80 barrels daily.

Helenwood—Railroad.—Surveys are being made for a railroad.

Helenwood—Stave Factory.—The Oxley Stave Co. contemplate erecting a stave factory, and are looking for a site.

Helenwood—Lumber and Stave Mill.—Puckett & Chandler, of Oacida, have erected their lumber and stave mill near Oacida.

Jackson—Spoke Factory.—Jacob Weis, previously reported as to move his spoke factory from Union City to Jackson, has let contract for a brick factory, 40x150 feet, to J. G. McCabe. He will probably manufacture hubs also. Next spring a warehouse, 50x150 feet, will be built.

Johnson City—School, &c.—The city will build a school and market-house next spring. The mayor can give information.

Johnson City—Land.—Isaac Harr and others have formed the East Tennessee Land Co., capital stock \$24,000.

Johnson City—Land.—The Mountain View Land Co., capital stock \$18,000, has been organized with R. S. Boyd as president; Isaac Harr, secretary, and C. J. Broyles, treasurer.

Knoxville—Church.—The Presbyterians contemplate building a church at West Knoxville.

Knoxville—Hotel.—The four-story building reported last week as to be erected by M. E. Thompson is the hotel previously mentioned as to be built. It is 50x135 feet, and will be finished in about three months.

Knoxville—Woolen Mill.—The Knoxville Woolen Mills contemplate, it is said, enlarging their mill to put in 100 additional looms.

Knoxville—Iron Works.—The Knoxville Brass & Iron Works will soon put in a new and larger cupola and probably some other machinery.

Lewisburg—Electric Light Plant.—Efforts are being made to form a company to erect an electric light plant.

Lewisburg—Dummy Railroad.—It is proposed to build a dummy railroad to Cornersville, but nothing definite has been done.

Liberty—Flour Mill.—Hale Bros. contemplate building a roller flour mill to be run by water-power.

Linden—Saw Mill.—W. C. Webb contemplate building a steam saw mill.

Loudon—Spoke and Handle Factory.—A. W. Ward & Co. are building a spoke and handle factory. It will be known as the Loudon Spoke & Handle Factory. This is one of the factories mentioned last week as to be started.

McAllister Cross Roads—Saw Mill.—A saw mill is being erected by J. W. Blackford.

McMinnville—Electric Light Plant.—A stock company is being organized to erect an arc and incandescent electric light plant, and bids on machinery for same are wanted. Address D. B. Carson.

Memphis—Oil Mill.—A cotton-seed oil mill is reported to be built.

Memphis—Building.—The Comett Library Trustees contemplate erecting a new building.



Memphis—Oil Mills.—The De Soto Cotton-seed Oil Mills will be moved to another location.

Memphis—Dummy Railroad.—The Memphis Electric Street Railroad Co. are negotiating for the entire property of the Prospect Dummy Line Co., with a view to extending the road, which is 9 miles long, 1 mile.

Morristown—Street Railroad.—The Morristown Street Railway Co. expect to complete a section of their street railroad, mentioned last week, early next week. They are considering using steam or electric power.

Mortimer—Saw Mill.—Brient Bros. have recently erected a saw mill.

Mortimer—Cotton Mill.—Brient Bros. will put in additional machinery to increase capacity 50 per cent. Their mill has 620 spindles now.

Nashville.—The Watauga Land Improvement Co. of Washington county, has been chartered.

Nashville—Furniture Factory.—The Edgefield & Nashville Manufacturing Co. have, it is stated, ordered machinery to double the capacity of their furniture factory.

Nashville—Lumber Mill.—The Nashville Lumber Co. will put in some new machinery which they want to purchase.

Pulaski City—Flour Mill.—Neely & McCord contemplate enlarging their flour mill.

Shelbyville—Water Works.—Water works are projected. The mayor can give information if anything is done.

Waverly—Stave Factory.—A stave factory will be started next spring by H. H. Hopkins & Sons.

Winchester—Timber Lands.—J. B. Shepard, of Anthony, Kansas, is reported as negotiating for timber lands.

Winchester—Hotel.—Miller Bros., of Tulsa, are building a hotel at Acklin Springs, 4 miles from Winchester, to contain 87 rooms.

Winchester—Distillery.—A whiskey distillery has been erected by Arkledge Bros.

Winchester—Saw Mill.—It is reported that A. Walton & Sons will add a saw mill to their stave factory.

#### TEXAS.

Austin—Dyeing Works.—Charles McCarty has started steam dyeing and cleansing works.

Bowie—Coal Mines.—Eastern parties are negotiating for the coal mines of J. H. Stephens with a view to their more extensive development.

Colmesneil—Saw Mill and Tram Road.—The Yellow Pine Lumber Co. contemplate putting in a band saw and a gang mill. They will extend their tram road about 3 miles.

Cuero—Oil Mill.—The Buchel Milling Co. contemplate building a 20-ton cotton-seed oil mill, and will want all machinery but power.

Dallas—Street Railroad.—The North Dallas Belt Railway Co., capital stock \$100,000, has been chartered. Sanger Bros. are probably interested.

Dallas—Depot, &c.—The Missouri, Kansas & Texas Railroad Co. (office, St. Louis, Mo.) are enlarging their terminal facilities and preparing to build a passenger and freight depot.

Dallas—Soap Factory.—Charles E. Brown, R. B. Godley, R. H. Stewart, R. H. Porter and others have chartered the Dallas Soap & Manufacturing Co., capital stock \$25,000.

Dallas—Crematory.—The city council contemplate building a crematory for disposing of garbage, &c., and have received propositions for construction of same. The mayor can give information.

Dallas—Railroad.—The Texas & Pacific Railroad Co. will issue \$50,000,000 of bonds.

Dallas—Cotton Mill.—The Dallas Cotton & Woolen Mills, who have just completed their cotton mill, have issued \$125,000 of bonds.

El Paso—Canal.—The El Paso Irrigation Co., lately mentioned as being organized with capital stock of \$250,000, will build a canal 50 miles long, beginning at El Paso. They want to purchase machinery for excavating canals and building dams. Ernest E. Russell is secretary.

El Paso—Railroad.—The Texas & Pacific Railroad Co. (office, Dallas) contemplate, it is said, building a road from Sierra Blanca to El Paso, about 90 miles. They now use the Southern Pacific Railroad between the points named.

Fort Worth—Collar and Bagging Factory.—The Spanish Moss Manufacturing Co. have commenced work on a new factory for manufacturing moss collars and jute bagging, previously reported. It will be two stories, 50x200 feet. Machinery is being purchased.

Fort Worth—Furniture Factory.—L. Gerlinger, of Chicago, Ill., has purchased a site costing \$7,700 to erect a three-story factory, 50x90 feet, for manufacturing office furniture, &c.

Galveston—Wells.—Hawley & Heidenheimer have contracted to sink three artesian wells for J. W. Byrnes, contractor for developing a supply of water for the new water works.

Galveston—Railroad.—The Galveston & Western Railroad Co. has been organized by Walter Gresham, J. H. Burnett and others to build railroad terminals in the city and extend the Texas Mexican Narrow Gauge Railroad.

Galveston—Electric Lights.—The Texas Star Flour Mills will put in additional boiler for their dynamo. They want to purchase the boiler; also 400 feet of cast iron suction pipe.

Gay Hill—Coal Mine.—Leonard Gee, of Brenham, has been opening a coal mine near Gay Hill, and is organizing a stock company to develop it.

Gilmer—Lumber Mills.—S. J. Mings, of Gatesville, has purchased the saw mills of the East & West Texas Lumber Co., and will probably operate them.

Greenville—Depot.—The Missouri, Kansas & Texas Railroad Co. (office, St. Louis, Mo.) will build a new depot next spring to cost \$10,000 or more.

Houston—Railroad.—The Houston & West Texas Railroad Co. have laid 21 miles of their road with new rails, previously mentioned, and are purchasing rails for 15 miles more.

Hyatt—Saw Mill.—Rice Bros. will enlarge their saw mill.

Jacksonville—Mining, &c.—The Jacksonville Land, Mineral & Improvement Co., capital stock \$100,000, has been organized to develop mineral lands, &c.

Jefferson—Soap Factory.—R. L. Godbold, of Dallas, contemplates starting a soap factory. A stock company will probably be organized.

Jefferson—Foundry.—R. Ballup will move the Kelly Foundry from Kellyville to Jefferson.

Jefferson—Iron Furnace, Car-wheel Works, &c.—John A. Kruse & Co., of Chicago, Ill., are the parties who will build the iron furnace reported last week. It is to be a charcoal iron furnace of 50 tons capacity. The furnace will be followed by car-wheel works and probably other manufacturing works. They will be known as the Lone Star Iron Co.

Jefferson—Furniture Factory.—A furniture factory is reported to be built.

Jefferson—Railroad.—The Missouri, Kansas & Texas Railroad Co. (office, St. Louis, Mo.) will, it is stated, change the gauge of their Jefferson Division, extending from Jefferson to McKinney, 155 miles, from narrow to standard gauge.

Johnson Station—Coal Mine.—A coal mine is being opened by James Byrnes.

Lancaster—Depot.—The Missouri, Kansas & Texas Railroad Co. (office, St. Louis, Mo.) will soon build a depot. They will have their road in operation to Lancaster within a week or two.

Laredo—Hotel.—Mr. Thompson, of California, will build a three-story brick hotel at once. He has been given a \$12,000 bonus.

Liberty—Saw Mills.—A saw mill is being built, and other parties are reported as prospecting with a view to building a saw mill.

Marble Falls—Brick-yard.—A. Arnall and others have purchased machinery to start a brick-yard.

Marshall—Soap Factory.—R. L. Godbold, of Dallas, reported last week as contemplating starting a soap factory, is organizing a stock company.

McKinney—Publishing.—The Examiner Publishing Co., capital stock \$5,000, has been chartered by J. A. L. Wolf, R. T. Seay, R. W. Carpenter and others.

Palmer—Hotel.—A hotel is reported to be built.

San Antonio—Electric Light Plant.—The San Antonio Electric Light & Power Co., lately mentioned as increasing capital stock from \$50,000 to \$100,000, have ordered machinery for 1,000 additional lights.

San Augustine—Railroad.—The Red River, Sabine & Western Railway Co., capital stock \$300,000, has been organized with T. T. Lloyd, of Marshall, as president; W. J. T. Evain, Clarksville, vice-president; F. H. Tucker, San Augustine, secretary, and I. H. Hollis, treasurer. Arrangements are being made to commence work within 30 days.

Sherman—Printing Office.—The Herald Publishing Co., publishers Sunday Herald, will put in steam fixtures, &c.

Sulphur Springs—Street Railroad.—The Sulphur Springs Street Railroad Co., lately mentioned as chartered, have received permit to build their road. They will soon commence work.

Taylor—Sorghum Factory.—The Kansas parties who contemplate erecting a sorghum sugar factory to cost \$100,000, as lately stated, are negotiating to build it at Taylor.

Troupe—Railroad.—Surveys have been made for a railroad projected from Troupe to Rusk.

Tyler—Car Works.—A. L. Clark, John Durst, P. G. Askew, E. C. Williams and others have chartered the Tyler Car & Lumber Co., capital stock \$100,000, and will start the car works lately mentioned. Mr. Clark is president.

Village Mills—Lumber Mill.—The Texas Tram & Lumber Co. are putting a new engine, 24x30 inches, in their lumber mill.

#### VIRGINIA.

Alum Springs—Hotels.—A. D. Campbell, W. F. Johnson and others, owners of the Rockbridge Alum and Jordan Alum Springs, have incorporated as the Peyton Campbell Co., capital stock \$50,000.

Big Stone Gap—Hotel.—The Intermont Building Co. have let contract for a hotel to cost \$12,000.

Charlottesville—Boot and Shoe Factory.—M. A. Hanson will in a few weeks start a boot and shoe factory to employ 20 hands at first.

Clifton Forge—Nail Mill, &c.—The report lately referred to that H. C. Parsons, of Natural Bridge, would, in connection with a New York syndicate, build an iron furnace, is not true. Negotiations are being made that may result in the building of a wire nail mill and two other mills.

Danville—Tobacco Factory.—Bendall, Hines & Co., manufacturers tobacco, will move into a larger factory to increase capacity.

Danville—Railroad.—The contract to grade the Atlantic & Danville Railroad from Danville to Clarksville, 60 miles, has been awarded to Ruffin & Harston, C. J. Holland, William Diffendall, John James and J. D. Blair.

Franklin—Saw Mill.—The Camp Manufacturing Co. are rebuilding a small saw mill lately burned.

Glade Spring—Canning Factory.—The Glade Spring Canning Co., capital stock \$10,000, has been formed to start a canning factory. J. P. Harrison can give particulars.

Houston Mines—Iron Mine.—Joel B. Lemon has sold his mineral lands on the Shenandoah Valley Railroad to Northern capitalists who will soon commence mining iron ore.

Lynchburg—Tobacco Factory.—It is reported that a tobacco factory will soon be started.

Lynchburg—Publishing.—John Whitehead will publish a paper, and has purchased an outfit.

Lynchburg—Car Works.—Efforts will be made in January to raise \$100,000 or more to establish the car works referred to last week. They will probably be established, if at all, in connection with the works of the Glamorgan Co.

Lynchburg—Electric Light Plant.—A. T. Barclay, C. M. Figgat, C. W. Irvine and others contemplate erecting the electric light plant mentioned last week, and have been getting estimates as to cost of plant.

Norfolk—Terminal Improvements.—The Norfolk Terminal Co. will issue \$2,500,000 of bonds to retire \$600,000 of 6 per cent. bonds and to make extensive improvements.

Norfolk—Lithographic Establishment.—The W. Thompson-Barron Co., lately mentioned as to enlarge their paper box factory, contemplate adding a lithographic establishment.

Norfolk—Warehouses, &c.—Parties interested in the New York, Philadelphia & Norfolk Railroad and the Atlantic & Danville Railroad are reported as organizing a company with a capital stock of several million dollars to build terminal facilities, cotton warehouses, &c., on both the Norfolk and Portsmouth side of the Elizabeth river, on the property of the Seaboard Cotton Compress Co., which has practically been purchased. In connection with these improvements, it is proposed to extend the Norfolk Southern Railroad, as stated last week to some point in South Carolina.

Portsmouth—Box Factory.—George G. Tyler, of Baltimore, Md., will build a box factory as soon as he can secure a suitable wharf site.

Pulaski City—Ore Washers.—The Bertha Zinc Co. will erect two double ore washers, and have ordered machinery.

Radford—Knitting Factory.—The Rad-Knitting Co., previously mentioned, have purchased a site on which to build their knitting factory.

Richmond—Street Railroad, &c.—The owners of the River View property are having streets graded, and contemplate building a street railroad to connect with the Richmond Electrical Street Railroad. R. B. Chaffin & Co. are their agents.

Roanoke—Railroad.—The Virginia & North Carolina Construction Co. will receive proposals for grading the Roanoke & Southern Railroad from Walnut Cove, N. C., to the Virginia State line, 20 miles.

Roanoke—Stove Works.—Parties owning large stove works in Detroit, Mich., will soon make investigations with a view to building branch works.

Roanoke—Cotton Mill.—Negotiations are being made for the erection of a cotton mill.



**Roanoke—Land.**—The Gambill Land Co. has been organized with Samuel Weil as president. They will grade streets, lay their land off into lots, &c.

**South Boston—Water Works.**—The contract to build the water works, previously reported, has been awarded to the Glamorgan Co. of Lynchburg, at \$10,810.

**Suffolk—Machine Works.**—The Suffolk Iron Works have put in some new additional machinery.

**Suffolk—Lumber Mill.**—The Southern Lumber Co. are putting additional machinery in their mill and erecting dry kilns.

**Waynesboro—Factories.**—A stock company is being formed to secure the establishment of manufacturing enterprises by donating sites, &c. The company will have probably 10,000 acres of land.

#### WEST VIRGINIA.

**Atlantic—Lumber Mill.**—The Potomac Lumber Co. have moved their lumber mill to Abram's Creek.

**Bramwell C. H.—Coal Mining, &c.**—The Goodwill Coal & Coke Co., capital stock \$50,000, has been chartered to mine coal and manufacture coke by Robert Goodwill, Anthony Goodwill and William L. Goodwill, of Shamokin, Pa., and Philip Goodwill and T. L. Meuritz, of Bramwell.

**Bluefield—Machine Works.**—W. A. Cather, & Bro., of Shenandoah, Pa., will establish machine works, to consist of iron foundry, machine shop, pattern shop and blacksmith shop. Building is to be commenced at once. The works will be known as the Shenandoah Iron Works.

**Charleston—Building.**—J. E. Tinley, of Staunton, Va., has been awarded the contract to build an addition to the government building. Tierney & Ryan will build the foundation, and will soon commence work.

**Charleston—Land.**—John L. Thornhill is advertising to purchase 20,000 acres of land, and will develop same.

**Charleston.**—The American Car & Equipment Co., of New York, have filed a certificate of incorporation.

**Fairmont—Coke Ovens, Railroad, &c.**—The Montana Coal & Coke Co., recently reported as building a large coke crushing, washing and elevating plant, with capacity of 800 tons daily, have purchased 10,000 acres of coal lands on West Fork river, and will build 200 coke ovens and a railroad from Fairmont to Clarksburg, to connect with the Baltimore & Ohio Railroad.

**Parkersburg—Brewery.**—Hebrank & Rapp, lately reported as to build a beer brewery next spring, have purchased a site for same.

**Parkersburg—Cold Storage.**—A warehouse for cold storage will be built by the Parkersburg Ice Co.

**Plymouth—Coal Tipples, &c.**—Thomas B. Bancroft, of Columbus, O., reported last week as leasing 600 acres of coal lands and to open mines soon, will erect coal tipples for both rail and water shipments. He expects to be shipping by May next.

**Wheeling—Boiler Works.**—The members of Prosperity Assembly, K. of L., mentioned last week as contemplating starting boiler works, want to purchase machinery and supplies. Address J. H. Ziegenfelder, 121 Seventeenth street.

**A. D. Laws, of Bridgeport, Conn.,** contemplates building an iron foundry at some point in the South.

#### BURNED.

**Alexander County, N. C.**—The saw and shingle mills of J. F. Moore.

**Baltimore, Md.**—The furniture factory of Kuehorth & Sons on West Camden street damaged \$2,500 by fire.

**Camak, Ga.**—The steam saw and grist mill and cotton gin on the David Dickson place in Hancock county.

**Camden, S. C.**—The mill and cotton gin of Thomas Rainey.

**Clarksville, Tenn.**—The planing mill of R. Ledbetter.

**Denton, Md.**—The carriage factory of Alfred D. Smith; loss \$1,500.

**Farmerville, La.**—The gin and mill of F. L. Dillard 8 miles from Farmerville; loss \$2,000.

**Gravella, Ala.**—The mill of Mr. Wilson, near Gravella wrecked by a boiler explosion.

**Hurtsboro, Ala.**—The saw and grist mills and cotton gin of Dr. L. J. Willcoxson, 5 miles from Hurtsboro.

**Lillington, N. C.**—The mill and gin of Dr. J. A. Sexton, of Raleigh; loss \$2,500.

**Louisville, Ky.**—The iron foundry of Fisher, Leaf & Co. damaged by a fire.

**Madisonville, Ky.**—The plant of the Reinecke Coal Co. damaged about \$2,000 by an explosion.

**Memphis, Tenn.**—The lumber mill of the Woodruff Lumber Co., loss \$25,000, and the box factory of Beard, Wilson & Co.; loss \$1,900.

**Pleasant Ridge, Ala.**—The mill of E. Frankel & Co.

**Port Deposit, Md.**—The saw mill of Samuel T. Freeman, of Philadelphia, Pa.

The gins of W. T. Lang, in Kershaw county, S. C.; James G. Darden, Newsom's Va.; G. W. Franck, Bullards, Ga.; W. D. Johnson, Aldrich, S. C.; John Q. Amerson, Sandersville, Ga.; Richard I. Manning, in Orangeburg county, S. C.; Harper C. Shoats, Ogeechee, Ga.; H. C. Green, in Talbot county, Ga.; W. A. Hoss, Thompson, Ga.; Riddell Hodges, near Ashville, Ala.; Charles McDermott & Co., Victoria, Ala.; J. F. Oliver, in Duplin county, N. C.; George W. Turtle, near Montgomery, Ala.; T. M. Cain, Emory, Texas; D. L. Cox, Townville, S. C.; Prof. Stubbs, Auburn, Ala.; Hammer & Rowan, Abbott, Texas; on the Mundel Place, Port Gibson, Miss; B. S. Aycock, Selma, N. C.; J. J. Chiles, Pleasant Ridge, Ala.; W. C. Whitestone, St. Matthews, S. C.; S. E. F. Rose, 9 miles from West Point, Miss., and Blunt & Neely, Little Rock, Ark., have been burned.

**TO BUILD SUGAR REFINERY.**—GRATTON, DAK., Dec. 10, 1888.—We expect to incorporate a company to build a central sugar refinery at Lydia (7 miles east of New Iberia), in Iberia parish, La.

P. E. SANDAGER.

**SPOKE AND HANDLE FACTORY.**—LOU- DON, TENN., Dec. 15, 1888.—A spoke and handle factory is now in course of erection, and will be in running order in about three weeks. It is to be known as the Loudon Spoke & Handle Factory. A. W. Ward & Co. are proprietors.

THE RECORD.

**SOAP FACTORIES.**—TEXARKANA, TEXAS, Dec. 13, 1888.—I have not as yet organized a soap company at Marshall or Jefferson, but will probably soon be able to report factories at both places. Stock is now being taken, &c.

R. L. GODBOLD.

**IMPLEMENT FACTORY.**—COLUMBIA, TENN., Dec. 12, 1888.—Efforts are now being made to form a company to manufacture drills, plows, &c. We expect to be ready to begin early next year with about a \$20,000 stock company, doing the manufacturing.

CHAS. & WILKINS.

**TO BUILD RAILROAD.**—MONTGOMERY, ALA., Dec. 3, 1888.—J. W. Dimmick, M. A. Baldwin, B. K. Collier, M. B. Houghton, of Montgomery, and others have incorporated as Montgomery & Sylacauga Railway, to build 60 miles standard gauge railroad between these points. Expect engineers to locate road soon. Believe work will commence early in 1889.

B. K. COLLIER.

**TO BUILD LARGE CANAL.**—EL PASO, TEXAS, Dec. 10, 1888.—The El Paso Irrigation Co. is being organized, with a capital stock of \$250,000, to build a canal about fifty miles long, beginning at El Paso. We want the address of firms that handle improved machinery for excavation and other work in connection with canal and dam construction.

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Foreign Exchange Quotations.

ALEXANDER BROWN & SONS.

BALTIMORE, Dec. 19, 1888.

Sterling.—Steady.		Commercial.	
60 days.....	48 1/2	60 days.....	48 1/2
3 days.....	49 1/2	3 days.....	48 1/2
Francs.—		Commercial.	
60 days.....	—	60 days.....	—
3 days.....	—	3 days.....	—
Reichmarks.—		Commercial.	
60 days.....	95 1/2	60 days.....	94 1/2
3 days.....	96 1/2	3 days.....	95 1/2
Guineas.—		Commercial.	
60 days.....	40 1/2	60 days.....	39 1/2
3 days.....	40 1/2	3 days.....	39 1/2

Baltimore Stock Exchange Quotations.

Reported by ALEXANDER BROWN & SONS, Bankers, Baltimore.

BALTIMORE, Dec. 19, 1888.

	ASKED.
Virginia 6's Consols C....	30
Virginia 5-4-3 10-40's.....	35 1/2
Virginia 7's, new.....	65
Virginia Consol Coupons No. 2.....	15 1/2
N. Carolina 4's.....	98 1/2
N. Carolina 6's.....	120
Charlotte, Col. & Aug.....	54
Wilmington & Weldon.....	120
W. Col. & Aug.....	120
Wilmington & Weldon gold, 7's.....	118 1/2
Wilmington & Weldon 5's.....	119
W. Col. & Aug. 6's.....	118
Ohio & M. 5's.....	90
Atlanta & Char. 1st, 7's.....	120
Atlanta & Char., income, 6's.....	120 1/2
Col. & Green, 1st, 6's.....	104 1/2
Va. Midland, 1st, 6's.....	113 1/2
Va. Midland, 2d, 6's.....	113 1/2
Va. Midland, 3d, 6's.....	106
Va. Midland, 4th, 6's.....	97
Char., C. & Aug. 1st, 7's.....	121 1/2
Char., C. & Aug. 2d, 7's.....	123
West Va. Central 1st, 6's.....	110
Ca. Pacific 1st, 6's.....	110 1/2
New Orleans gas 1st, 5's various, J. & J. ..	103 1/2

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#### PROPOSALS.

**U. S. ENGINEER OFFICE, WILMINGTON, N. C., November 21st, 1888.**—SEALED PROPOSALS for DREDGING in Cape Fear River, N. C. below Wilmington, will be received at this office until 10 A. M. on January 5, 1889. The attention of bidders is specially invited to the Acts of Congress approved February 25, 1885, and February 23, 1887, volume 23, page 330, and volume 24, page 414, Statutes at Large. All information will be furnished by W. H. BIXBY, Captain of Engineers.

**U. S. ENGINEER OFFICE, WILMINGTON, N. C., November 23, 1888.**—SEALED PROPOSALS for DREDGING in the Harbor at Georgetown, S. C., will be received at this office until 11 A. M. on January 18, 1889. The attention of bidders is specially invited to Acts of Congress approved Feb. 27, 1885, and 23 February, 1887, volume 23, page 330, and volume 24, page 414, Statutes at Large. All information furnished by W. H. BIXBY, Captain of Engineers.

**U. S. ENGINEER OFFICE, WILMINGTON, N. C., November 24, 1888.**—SEALED PROPOSALS for DREDGING in Harlowe Creek, Inland Waterway between New Bern and Beaufort, N. C., will be received at this office until 10 A. M. on January 18, 1889. The attention of bidders is specially invited to Acts of Congress approved Feb. 27, 1885, and 23 February, 1887, volume 23, page 330, and volume 24, page 414, Statutes at Large. All information furnished by W. H. BIXBY, Captain of Engineers.

**U. S. ENGINEER OFFICE, WILMINGTON, N. C., November 24, 1888.**—SEALED PROPOSALS for DREDGING in Bogus Sound, Inland Waterway between Beaufort Harbor and New River, N. C., will be received at this office until 10 A. M. on January 18, 1889. The attention of bidders is specially invited to Acts of Congress approved Feb. 27, 1885, and 23 February, 1887, volume 23, page 330, and volume 24, page 414, Statutes at Large. All information furnished by W. H. BIXBY, Captain of Engineers.

**U. S. ENGINEER OFFICE, WILMINGTON, N. C., November 24, 1888.**—SEALED PROPOSALS for DREDGING in New River, N. C., will be received at this office until 10 A. M. on January 18, 1889. The attention of bidders is specially invited to Acts of Congress approved Feb. 27, 1885, and 23 February, 1887, volume 23, page 330, and volume 24, page 414, Statutes at Large. All information furnished by W. H. BIXBY, Captain of Engineers.

**U. S. ENGINEER OFFICE, WILMINGTON, N. C., November 25, 1888.**—SEALED PROPOSALS for RUBBLE-STONE to be delivered at Beaufort Harbor, N. C., will be received at this office until 12 noon on January 18, 1889. All information furnished by W. H. BIXBY, Captain of Engineers.

**U. S. ENGINEER OFFICE, WILMINGTON, N. C., November 24, 1888.**—SEALED PROPOSALS for DREDGING in Beaufort Harbor, N. C., will be received at this office until 10 A. M. on January 18, 1889. The attention of bidders is specially invited to Acts of Congress approved Feb. 27, 1885, and 23 February, 1887, volume 23, page 330, and volume 24, page 414, Statutes at Large. All information furnished by W. H. BIXBY, Captain of Engineers.

**U. S. ENGINEER OFFICE, WILMINGTON, N. C., November 24, 1888.**—SEALED PROPOSALS for BITUMINOUS COAL delivered on the Cape Fear River at or below Wilmington, N. C., will be received at this office until 11:30 A. M. on January 18, 1889. All information furnished by W. H. BIXBY, Captain of Engineers.



## MACHINERY WANTED.

If you desire to purchase machinery of any kind consult our advertising columns, and if you cannot find just what you wish, send us particulars as to the kind of machinery needed. We will make your wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. You will thus get all information desired as to prices, etc.

Boiler Works.—J. H. Ziegenfelder, 121 Seventeenth street, Wheeling, W. Va., wants to purchase machinery and supplies to start boiler works.

Electric Light Plant.—The Annapolis Electric Light Co., Annapolis, Md., will receive bids on machinery for their plant.

Electric Light Plant.—D. P. Carson, McMinnville, Tenn., wants bids on machinery for an arc and incandescent electric light plant.

Engine.—The Tibbetts Lumber Co., Plantersville, Ala., will shortly want to purchase an engine for a logging railroad, 41 1/2-inch gauge.

Excavating Machinery.—The El Paso Irrigation Co., Ernest E. Russell, secretary, want to purchase improved machinery for digging canals and building dams.

Flour and Corn Mill Machinery.—Machinery for a 100-barrel roller flour mill and for manufacturing hominy, grits, pearl meal and family meal is wanted by the Star Mills Co., Charlotte, N. C., C. Gresham, president.

Gas and Electric Light Fixtures.—Bids for furnishing and putting in position certain combination gas and electric light fixtures for the custom-house at Richmond, Va., will be received until December 27 by C. S. Fairchild, Secretary of Treasury, Washington, D. C.

Grinding Machinery.—A machine for grinding or otherwise reducing bark, chips and other mill refuse fine enough to be fed to furnace by chain conveyor is wanted by D. S. Abbott, Olean, N. Y.

Hominy Mill.—Charles E. Manor, Sands, Va., wants the address of the manufacturer of the Lord Baltimore hominy mill.

Iron-Working Machinery.—The Rome Foundry & Machine Works, Rome, Ga., want to purchase one second-hand planer, 32x32 inches x 7 feet; one new shafting lathe, 20 inches x 20 feet between centers, with shafting turning attachments; one new lathe, 24-inch swing by 8 feet between centers; one suspension drill press; one foundry blower, suitable size to melt four tons per hour, and one forge blower, suitable size to run two or three forges.

Marble Quarry Machinery.—The Hercules Marble Co., Knoxville, Tenn., will purchase a plant of machinery with capacity for mining about 2,000 cubic feet per month.

Metal Roofing.—The Rome Foundry & Machine Works, Rome, Ga., want prices on metal roofing.

Oil Mill Machinery.—The Buchel Milling Co., Cuero, Texas, will want to purchase all machinery, except power, for a cotton-seed oil mill of 20 tons capacity.

Paper Mill Machinery.—Joseph Hodgson, Mobile, Ala., wants estimates as to the cost of machinery for a small paper mill.

Plumbing.—Will A. Freret, Washington, D. C., will receive proposals until December 27 for labor and materials for completing the plumbing of the government building at Harrisonburg, Va.

Pumping Machinery.—The American Water Works & Guarantee Co., Limited, Pittsburgh, Pa., want bids for a pumping engine for the water works at Chattanooga, Tenn., with a daily capacity of 8,000,000 gallons.

Saw mill machinery will be purchased by the Atlanta Glass Co., Atlanta, Ga.

Steel Rails.—Roberts Bros., Robertsville, La., have purchased 1 1/2 miles of 30-lb steel rails, and will soon purchase more.

Water Works.—Propositions for building water works at Cedartown, Ga., will be received by Charles G. Jones, mayor.

Wood-working Machinery is wanted by W. H. Edwards, Graniteville, S. C.

TO DEVELOP MARBLE QUARRIES.—KNOXVILLE, TENN., Dec. 15, 1888.—We expect to put in a complete plant immediately. As to capacity, &c, I cannot yet give definite information, as our board of directors has not yet taken action in the matter, but we will certainly put in plant of sufficient capacity to turn out 2,000 cubic feet per month.

HERCULES MARBLE CO.

BUILDING LUMBER MILL.—LASATER, TEXAS, Dec. 10, 1888.—We now have under construction one mill of 25 M. daily capacity of yellow pine lumber. There is to be erected at Jefferson, Texas, one 50 ton charcoal iron furnace plant and car shop and wheel foundry, work to begin within 30 days from December 8th, ult., by a Chicago syndicate of much means.

EAST LINE LUMBER CO.

WATER WORKS.—LYNCHBURG, VA., Dec. 13, 1888.—We have closed the contract with the town of Goodson, Va., to put in water works complete for \$24,000, to be completed by June 1, 1889.

GLAMORGAN CO.

STONE QUARRIES TO BE WORKED.—LEMON SPRINGS, N. C., Dec. 13, 1888.—I have leased my brownstone quarries to P. Lineham & Co., of Raleigh, N. C. They promise to commence operations very soon.

JNO. W. SCOTT.

BUILDING HOTEL.—KNOXVILLE, TENN., Dec. 15, 1888.—I am building a four-story brick hotel, with elevator and all modern hotel attachments. It will be finished in about 90 days. Size is 50x135 feet.

M. E. THOMPSON.

TO BUILD FLOUR MILL.—CHARLOTTE, N. C., Dec. 14, 1888.—The Star Mills Co. has been incorporated and want to purchase machinery for a full roller process flour mill of 100 barrels capacity, and machinery for a full line of corn goods, viz: hominy, grits, pearl meal and family meal.

Mr C. Gresham is president. X. Y.

IRON FURNACE AND FACTORIES TO BE BUILT.—ROME, GA., Dec. 17, 1888.—J. W. Rounsaville, T. F. Howel, W. P. Simpson and others are organizing a furnace company, and expect to commence the construction of a 100 ton furnace the 1st of January next. J. B. Patton, working 100 hands, will construct planing mill, and will manufacture sash, doors, blinds, etc. Davis & Cummings will build a foundry, and will make a specialty of mill machinery. The last two plants will locate in West Rome on the lands of this company. The Pennsylvania capitalist, heretofore mentioned as seeking a location for a rolling mill, are again in our city, and have about concluded to locate here. A company is now being organized to manufacture wagons, etc., in Rome. J. M. J.

TO BUILD LARGE FACTORY.—DANVILLE, VA., Dec. 6, 1888.—We will commence on our factory March 1, 1889. It will be brick, 56x190 feet, five stories, capacity 7,000,000 pounds annually, and will be fitted up with the latest and best improvements for handling leaf tobacco. The Danville Storage Warehouse, with a capacity of storing 6,000 bbls., will be completed January 1, 1889. This will be an important factor in our trade.

PEMBERTON & PENN.



Seneca Falls Mfg. Co. #42 Water St., Seneca Falls, N.Y.

## BUSINESS CHANCE.

A large manufacturing company, having an established trade on a line of goods controlled by patents, find that the growth of their business, together with a desire to accommodate customers in territory tributary to other prominent jobbing points, will necessitate their establishing two or three branch houses, and will furnish when necessary from \$10,000 to \$25,000 with satisfactory parties furnishing an equal amount. This is a rare opportunity for a thorough business man who desires to enlarge his field of operations. Please state age, past experience and amount you can invest in cash. Address, BRANCH HOUSE, care Union National Bank, Chicago, Ill.

## BARGAINS!

Second-Hand Machinery, Good as New.

## MACHINERY DEPOT.

437, 439 & 441 N. Third St., Philadelphia, Pa.  
 2 to 100 horse-power Vertical and Horizontal Engines.  
 2 to 100 horse-power Horizontal and Vertical Boilers.  
 1 100 horse-power Horizontal Engine, cylinder 18x24".  
 1 30 horse-power Copeland & Bacon Hoisting Engine.  
 1 20 horse-power Stokes & Parish Elevator Engine.  
 1 6 horse power Hoisting Engine.  
 2 Shopley Portable Engines and Boilers, 5 and 8 H. P.  
 1 50"x16" Engine Lathe.  
 1 24"x12" Blandell Lathe.  
 10 Screw Cutting Lathes, 10 to 18" swings.  
 1 24" Skenk Planer, Matcher and Moulder.  
 13 Drill Presses, from 25" to 10" swing.  
 2 Muley Saw Mills, complete.  
 6 Surface Planers, all sizes.  
 1 12 Jointer, 2 Mortising and 2 Tenoning Machines.  
 1,000 Pulleys, at 3 and 4 cents per pound.  
 10 tons Shafting, Hangers and Couplings.  
 Leather, Rubber and Cotton Belting.  
 Large assortment of Iron and Wood-Working Machinery.  
 Please write for Prices.

## Cotton Machinery

## FOR SALE CHEAP.

3 Higgins Speeders, 120 spindles each, 8x4;  
 also 12 Bridesburg Spinning Frames, 180 spindles each, 1 9 16 gauge, latest improved.  
 Apply to J. NUTTALL, 1723 N. Fifth street, Philadelphia, Pa.

## Cotton Mill Machinery, and Yarn

## FOR SALE.

16 Crompton Looms, 200 Loom Beams, 2 Ballers, 1 Cloth Inspecting Machine, 2 Swift Spoolers, 4 Reels, 7 Copping Machines, 8 Beaming Machines, Winding Machine, Lot of Colored Yarn. Apply to  
 J. H. and J. CHACE,  
 17 Exchange street, Providence, R. I.

## Cotton and Woolen MACHINERY.

50 Crompton Fancy Cotton Looms, nearly new, 36 inch reed space, for 12 Harnesses, 4 boxes at one end, 1 at the other.

My Store Houses here have over 2 ACRES of storage, which is covered with good machinery, including nearly full systems for Cotton and Woolen Mills.

## JEREMIAH CLARK,

Lowell, Mass. Office, 63 Dutton St.

## FOR SALE.

Mrs. Sam'l Nickelson's WOOLEN MILLS, located in Gallatin, near L. & N. depot and in a wool growing section. Building and machinery in first class condition. For sale because owner has no one to operate it. Has been and can be again profitably operated if an energetic and experienced operator had control of it. Price, \$8,000. Terms easy. For further information, apply to Boone, Boyers & Co., Real Estate Agents, Gallatin, Tenn.



ENTIRELY NEW. HOME-LIKE. ELEGANT.  
 HIGHEST ELEVATION ON HANDSOMEST STREET  
 American Plan, \$3.00 to \$4.50 per day.  
 Telegraph for Rooms at our expense.  
 C. WARNER STORK, Proprietor.

JOYCE, CRIDLAND & CO.  
DAYTON, O.

MANUFACTURERS OF

J. O. Joyce's Patent Lever Jacks,

Compound Lever



SCREW JACKS,  
AND BENCH VISES.

50 varieties of Lever and Screw Jacks for railroad use.  
Please send for illustrated catalogue.

## FOR SALE

At a Bargain.

A No. 4

## Hoyt Bros. Double Surfacers.

Address J. MICHELS,  
61 Fort St. East, Detroit, Mich.

## 3 New Marine Steel Boilers,

ONE HUNDRED AND FIFTY HORSE-POWER EACH CAN BE USED TOGETHER IN ONE BATTERY OR SEPARATELY; NOW STORED AT APALACHICOLA, FLA. For terms, address

The FILER & STOWELL COMPANY,  
MILWAUKEE, WIS.

## Street Cars For Sale.

We have under construction for delivery in from 40 to 60 days, 20 14-foot Street Cars of approved design and handsome finish, with patent trucks for electrical equipment, or they can be finished for horse-power if desired. Refer by permission to Richmond Union Passenger Railway (electric) or Richmond City Railway, (horse), of Richmond, Va.; also to Sprague Electric Motor Co., 16 and 18 Broad street, and 510 W. 30th street, New York.

## Richmond Locomotive &amp; Machine Works

RICHMOND, VA.

## COAL and IRON

Properties located in the best fields of Alabama and Tennessee FOR SALE. Finest timber tracts in the South and West. Data furnished. Ask for what you need.

CLARKE & BIBB,  
BANKERS AND BROKERS,  
18 Broadway, New York.

## Valuable Pine Lands for Sale.

10,000 ACRES OF PINE LANDS, in Baldwin and Corning counties, Alabama, a large portion of which is virgin pine forest. Apply to LOUIS LOWENSTEIN, Administrator of Estate HENRY WATSON, or

S. T. PRINCE, Attorney, MOBILE, ALA.

## FOR SALE.

320 Acres of Land,

upon which a WELL DEFINED VEIN OF MANGANESE has been exposed, located four miles from the IRON MOUNTAINS and DIRECTLY ON THE LINE OF THE MEMPHIS AND INDIAN TERRITORY R. R., now in course of construction.

ROBT. W. WORTHEN,  
LITTLE ROCK, ARK.

## FOR SALE.

I own 15,000 ACRES of the celebrated

Elkhorn, Ky., Coal Lands,

that I will sell, containing four veins of Coking Coal from 4 to 11 feet above water, one of Splint and one of Cannel; assay much BETTER THAN CONNELLSVILLE, Pa.

Also,

3,610 Acres of Iron Lands,

in Rockbridge county, Va., two miles from railroad. This property has the

FINEST CAR-WHEEL IRON in the State and in immense quantities.

E. B. MOON, Bristol, Tenn.



Established 1855.  
**GEORGE PLACE,**  
 Late the George Place Machinery Co.  
**Equipment of Railway and Car Works,**  
 EQUIABLE BUILDING,  
 120 Broadway. - NEW YORK.

### TIMBER LANDS!

Large and small tracts of Yellow Pine, Hardwoods, Cypress; also choice White Oak; located in Virginia, North Carolina, Tennessee, West Virginia, Alabama, Mississippi, Texas, Louisiana, Florida, Arkansas. Also Coal and Iron Ore Lands. Correspondence solicited from responsible people. W. H. Howcott, 194 Common Street, New Orleans, La. Cable address—"Howcott."

L. T. CHILES, J. O. MILLER, LEWIS APPERSON,  
 President. V.-Pres. Secy. & Treas.

### Pineville Land & Lumber Co.

Capital Stock, \$100,000.00.

Principal office, Mt. Sterling, Ky.; branch offices Pineville, Ky., and Louisville, Ky.

The Company has for sale several hundred choice

**Lots for Manufacturing, Mercantile or Residential Purposes,**

situate on the railroad front in the WEST END OF PINEVILLE.

Co-response solicited. Address, LEWIS APPERSON, Secretary, Mt. Sterling, Kentucky, or T. C. H. VANCE, Manager, 5th and Main Streets, Louisville, Ky.

### Timber and Mineral Lands IN THE SOUTH

FOR SALE BY

**NELSON, WILLIAMS & CO.**  
 Real Estate Brokers and Investors  
 NASHVILLE, TENN.

5,000 acres Virgin Poplar and Oak Timber Land near new railroad at a bargain. 25,000 acres fine timber on good stream. Others of from 1,000 to 60,000 acres Timber and Mineral Lands inspected and reported. Correspondence invited. Reference, any bank or business house in Nashville.

### THE Mineral & Timber Land Co. OF THE SOUTH.

Capital - \$100,000.

Ex Gov. John C. Brown.....President  
 J. H. Moore.....Vice President  
 T. F. P. Allison.....Vice President  
 Lewis T. Baxter.....Secretary and Treasurer

**Mineral and Timber Lands in the Southern States Bought and Sold on Commission.**

Agencies in New York, Chicago, Boston and London.

We call the attention of owners of large tracts of land to the unusual advantages offered by this Company. Address

**LEWIS T. BAXTER,**  
 Secretary and Treasurer,  
 Nashville, Tenn.

References: The bankers and business men of Nashville, Tenn.

### MEMPHIS Land & Timber Co.

No. 10 Madison Street,  
 MEMPHIS, TENN.

OFFERS FOR SALE

**250,000**  
 ACRES OF  
**Timber & Agricultural LANDS**

In the Counties of Clay, Greene, Craighead, Poinsett, Mississippi, Cross, St. Francis, Crittenden, Woodruff and Monroe, in the State of

**ARKANSAS,**

in bodies to suit purchasers. Prices very reasonable. Correspondence invited.

## STEEL RAILS

COMPLETE OUT-FIT FOR  
**Logging, Mining and Plantation**

RAIL AND TRAM ROADS.

Light Sections Rails and Spikes in stock.  
 Locomotives, Logging Cars, etc.  
 NEW AND SECOND HAND.

**HUMPHREYS & SAYCE,**  
 10 WALL ST., NEW YORK.

## FOR SALE. Railway Equipment.

Locomotives for Freight, Passenger, Construction, Logging and Motor Service, of all weights, sizes and patterns, in excellent condition and for prompt delivery, Standard and Narrow Gauge. Passenger and Freight Equipment, Standard and Narrow Gauge, in great variety. All the above on terms to suit.

**New York Equipment Company,**  
 10 Wall Street, New York City.

## FOR SALE!

- 3 Ingersoll Compressors class "A."
- 2 Rand Compressors, duplex.
- 35 Ingersoll Drills.
- 10 Rand Drills.
- 100 38" gauge Dump Cars, 2 1/2 yards.
- 100 36" gauge Dump Cars, 1 1/2 to 2 1/2 yards.
- 4 Locomotives, 36" and 38" gauge.
- 10 Worthington Pumps.
- 2 Centrifugal Pumps.
- 2 Root Rotary Blowers.
- 5 Steam Shovels.

**J. C. SAXTON,**  
 52 BROADWAY, NEW YORK.

## A RARE OPPORTUNITY! FOR SALE OR LEASE.

The property known as East Mississippi Cotton Mills, located two miles from the GROWING CITY OF MERIDIAN, MISSISSIPPI.

Two Buildings, each 50x100, two story. One 100 horse power Engine. 2,500 Spindles. 50 Looms. Everything in complete order, now in full operation. Houses for superintendent and operatives, together with 800 acres of land. Cheap fuel; plenty of water for all purposes. Sufficient sample or loose cotton can be purchased in the local market at reduced price to run the mill all the time, besides a saving in bagging and ties. Sold or leased with or without land. This property is placed upon the market because the owner being largely engaged in other business has not the time to attend to it. For further particulars, address

**C. W. CALLAGHER & CO., P. O. BOX 413, MERIDIAN, MISS.**

## FOR SALE!

One 18"x46" CORLISS ENGINE, good as new.

One 12"x30" CORLISS ENGINE, entirely new and now being built.

**WE MAKE A SPECIALTY OF CORLISS ENGINES.**

Send for Estimates to

**REMINGTON MACHINE CO.**  
 Wilmington, Del.

## FOR SALE Valuable Mill Plant

Recently vacated, on removal to larger quarters, by the



**NASHVILLE LUMBER CO.**  
 NASHVILLE, TENN.

and represented in the accompanying engraving. Situated in the suburbs of Nashville, Tenn., just outside the corporate limits. The lot is 650 feet railroad front and 300 feet deep. Bounded by streets on three sides, and the railroad on the front. It has a splendidly built Planing Mill Building, Storage Sheds 200 feet long, Stable, Office, etc. Improvements alone cost more than \$5,000. This is valuable manufacturing property, and will be sold for the value of the land only. Address

**Nashville Lumber Co.**  
 NASHVILLE, TENN.

## Second-Hand Machinery.

**IRON PLANERS.**  
 24 in. 48x24 in.; 32 in. 48x36 in.; 32 in. 36x36 in.; 5 ft. 24x30 in.; 3 ft. 12x16 in.

**ENGINE LATHES.**  
 15 in. bed, 30 in.; 16 in. x 36 in.; 10 in. x 26 in.; 9 ft. x 16 in.; 8 1/2 ft. x 19 in.; 8 ft. x 17 in.; 8 ft. x 15 in.; 6 ft. x 15 in.; 6 ft. x 16 in.; 5 ft. x 14 in.; 6 ft. x 14 in.; 6 ft. x 13 in.

**DRILLING MACHINES.**  
 36 in. B. G. self feed; 36 in. ditto; 30 in. B. G. hand feed; four 20 in. plain ditto. 1 1/4 in. Freeland Slotter, automatic feeds; 1 Justice Hammer.  
 One 15 in. one 10 in. Shaping Machines  
 One 1 in. Seamless Pipe Cutting Machines.  
 One 1 in. Bolt Cutter.  
 Send for lists second-hand tools.

**NEW YORK MACHINERY DEPOT,**  
 Bridge Store, No. 16, on Frankfort Street, New York.

### Second-hand Machinery in Good Order FOR SALE CHEAP.

Engine Lathes—34 in. x 30 ft.; 24 in. x 14 ft.; 24 in. x 13 ft.; 1 each 24 in. x 30 in. and 24 ft.; 24 in. x 28 ft. bed, Field; 24 in. x 15 and 16 ft.; 28 in. x 30 ft.; 28 in. x 10 and 12 ft.; 18 in. x 20 ft.; 20 in. x 10 ft.; 20 in. x 12 ft.; 1 each 16 in. x 6, 8 and 10 ft.; 6 each 14 in. x 6 ft.; 1 1/2 in. x 5 ft.; 4 each 15 in. x 6 ft.; 2 each 12 in. x 4 ft. and 5 ft.; 1 20 in. x 3 1/2 ft., foot power.

1 Brass Turret Lathe.  
 1 each Planer, 24 in. x 24 in. x 3 and 8 ft.  
 1 " 30 in. x 30 in. x 8 ft.  
 1 Planer, 36 in. x 30 in. x 7 ft.  
 1 " 40 in. x 40 in. x 14 ft.  
 1 Screw Planer, 18 in. x 3 ft.  
 1 Shaper, 6-in. stroke. 1 12-in. Shaper, two tables  
 each 12, 15, 20 and 28 in. stroke.  
 1 24-in. Header Shaper.  
 1 Crank Planer, 6 Lincoln Pat. No. 2 Millers.  
 1 each 3 and 6 Spindle Gang Drill.  
 1 each Nos. 1 and 2 Screw Machines. Wire Feed  
 Pratt & Whitney. Good as new.  
 1 375-lb. Drop Hammer. Beecher & Peck.  
 1 400-lb. Merrill Drop Hammer.  
 1 each 40 & 60 lb. Vertical Hammers.  
 1 No. 5 Ferracut Press. 1 Nut-Facing Machine.  
 1 No. 5 Stiles Gearing Press.  
 10 Foot Presses, assorted. 8 Power Presses, assorted  
 15 Punching and Shearing Machines, assorted.  
 2 Return Tubular Boilers, 35 H.-P.  
 1 National Bolt Cutter, sizes, 1/4 in. to 1 in.  
 1 Bolt Cutter, 1/4 in. to 1 1/4 in. Good order. A J  
 head, Merriman.

1 Bolt Cutter, 1/4 in. to 1 in. Adj. hand. Sellers.  
 1 each Nos. 2 & 3 Garvin Hand Millers. Good as new  
 1 Horizontal Engine each 25 and 45 H.-P.  
 1 each 4 and 8 H. P. Portable Engine.  
 1 2-Spindle Profiling Machine.  
 1 Horizontal Boring Machine, 36 in. x 6 ft.  
 1 13-inch Slotter.  
 1 Power Mortising Machine.  
 Also full line of New Machinery.  
 New York Agency TAYLOR MFG. CO., Engines,  
 Boilers, &c. Correspondence solicited.  
**PRENTISS TOOL AND SUPPLY CO.**  
 P. O. Box 356. No. 25 Dev St., New York City

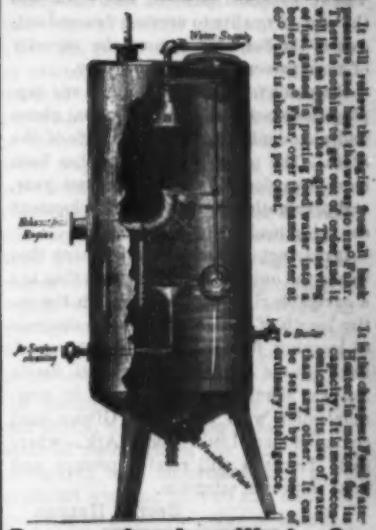
## WIRE & WIRE GOODS.

SPECIALTIES—Wire Cloth, Rope, Staples, etc. SCREENS for Coal Sash and Ores. Barbed and Plain Fencing Wire. Bank and Office Railings.



116 & FOURTH ST., opp. Southern Hotel.  
 Fine Artistic Work a Specialty.  
 Correspondence Solicited. Send for newly illustrated catalogue.

## Ewer's Feed Heater and Purifier.



**Progressive Iron Works Co.**

251 and 255 Green Point Ave.  
 BROOKLYN, N.Y.

## Iron Mountain Route To Texas, Mexico & California.

Now that the winter season is here there is extensive inquiry concerning warmer climates and how to get to them. The Iron Mountain Route has the most extensive train service, is the best equipped and is consequently the most popular line reaching, in connection with the I & G. N. R. R., the winter resorts of Texas, the historical and picturesque cities and country of Mexico. It also forms with its connections the most desirable winter route to the genial retreats of California. Through Pullman Buffet sleeping cars are run from St. Louis to Texas points and California, and there is a continuous line of sleeping cars from St. Louis to the City of Mexico, with only one change at Laredo or El Paso.

**H. C. TOWNSEND,**  
 General Passenger and Ticket Agent,  
 ST. LOUIS, MO.

## A New Georgia Enterprise.

**Leak's Collecting and Protective Agency of Georgia.**  
 HEADQUARTERS, GRIFFIN, GA.

Offers to resident and non-resident creditors a safe and prompt method of collecting debts. Offers to furnish creditors, on application, the present standing of any firm in the state. This agency represents credit throughout the state to look after their outstanding accounts, to protect them in giving credit, and to notify them when any of their customers begin to get in bad shape. Its chief field of operations is directed to Commercial Creditors, and will confine its workings solely to this state.

This Agency will furnish an estimate of the Financial Standing and Reliability of any business firm doing business in this state, on commercial travelers or salesmen representing firms who are our patrons. Being familiar with the leading attorneys in Georgia, we have selected some except the leading and most reliable attorneys in the different cities and towns, and we can assure our patrons that claims sent to us will be immediately placed in the hands of attorneys able and reliable in every particular.

We shall publish a book annually containing general information, and the same will be furnished to our patrons.

Send your claims to S. G. LEAK, and correspond only with him at headquarters, Griffin, Ga. Address

**S. G. LEAK, Manager,**  
 GRIFFIN, GA.



(CONTINUED FROM PAGE 16.)

coke." Prof. Roberts says: "Some of these Arkansas coals will coke."

## THE COAL OUTPUT

On the immediate line of the Little Rock & Fort Smith Railway is already from twenty to twenty-five cars per day, most of which is consumed upon the railroads. And the Missouri Pacific system have purchased a large body of coal land in Sebastian county, and expect soon to complete a railroad to them and prepare for the immediate output of fifty cars per day.

The Kansas & Texas Coal Co. have only been operating at Huntington, in Sebastian county, twelve months, and are already making an output of fifty cars per day. The vein worked is seven feet thick and the coal of quality to create a demand outside of the State far beyond the capacity of their present facilities to supply.

Railroads from every direction are tapping these coal fields; making coal cheap and abundant in almost all parts of the State. The production of coal has been more than doubled during the past year, and preparation for greater development are being made.

It may not be amiss to state here that this is the only railway land grant that has a navigable river running through the entire length of the grant. Parties desirous of learning further of the advantages offered by the Little Rock & Fort Smith Railway should place themselves in communication with Col. J. M. Gibson, land commissioner, Little Rock, Ark., where their inquiries will receive prompt and most respectful attention.

## HINTON HELPER

**WHITE LEAD & COLOR WORKS—NEW ORLEANS, LA., Dec. 14, 1888.**—We have organized the American White Lead & Color Works of New Orleans, the only white lead and color works south of Cincinnati and St. Louis. We will make everything in the paint trade same as any Northern concern. **AMERICAN WHITE LEAD & COLOR WORKS.**

**TO ENLARGE FACTORY.—RICHMOND, VA., Dec. 7, 1888.**—We will add to our basket business the manufacturing of all kinds rotary cut veneers, and about April, 1889, we will begin the manufacturing of tin bound butter dishes. We have just completed a large storage house, and will add considerably to our present building in the spring. **RICHMOND BASKET & WOODENWARE MFG. CO.**

**TO OPEN COAL MINES—COLUMBUS, O., Dec. 16, 1888.**—Mr. W. A. Davis and myself are about opening 600 acres of the celebrated splint coal near Raymond City, W. Va., on the Kanawha river. The vein runs from 5 to 6 feet thick of clean coal. Do not expect to coke it, but expect to open up a trade both by rail and river, and will erect tipplers for both. The lease is upon the lands of Hon. J. L. McLean, of Winfield, W. Va., and we hope to be ready for shipping by May next.

THOS. B. BANCROFT.

One day last week the Pratt Coal Mines, of Alabama, turned out 4,402 tons of good merchantable coal, which is claimed to be the largest amount ever put out in one day by any coal mine.

H. M. NE SMITH, of Birmingham, who was recently reported as having sold 300,000 acres of coal land to English syndicates, writes to the MANUFACTURERS' RECORD that he has just closed a contract for the sale of 100,000 acres more to a syndicate of Manchester, Liverpool and London moneyed men.

## The Southern Exposition.

## Some Interesting Facts from Augusta.

AUGUSTA, GA., December 15, 1888.

In the south wing of the Exposition Building, and in that part immediately north of it are all the exhibits of machinery in motion. The four engines that supply the motive power are centrally located, and every one of them is an exhibit. On either side are the various machines that represent the textile industries, and beyond these are gins presses, and all sorts of things, including one of Ingersoll's rock drills, in operation. A peculiar thing about this whole establishment is that while there is bustle and clatter of machinery, yet there is very much less noise than one would suppose. Whether it is due to the height of the building or to some other cause I cannot explain, but you may stand in the midst of this machinery in motion and converse in an ordinary tone of voice without being overcome with the racket of an ordinary mill.

In the extreme corner of the southern wing is the fine display of the Liddell Co., of Charlotte, N. C. That enterprising company has on exhibition power presses and hand presses which have already acquired such a reputation throughout the South that agencies have been established at many points and are making large sales. In fact the Liddell presses may be called staples of trade in that line. Out on the grounds they have in operation one of their variable feed saw mills, and the way in which they convert pine logs into boards keeps around that exhibit a constant throng of visitors. There is a certain fascination about a saw mill that no boy was ever able to overcome, but in looking at it and at the competing exhibit of George R. Lombard & Co., of this city, the spectator is interested not only in the work done by the two mills, but also in the enthusiasm manifested by the grown up people concerning them. On the other side of the aisle from the Liddell exhibit is the splendid collection of wood-working machinery belonging to the old and substantial firm of Goodell & Waters, of Philadelphia. This enterprising firm has in its space a five-inch moulder, a single spindle reversible shaper, an Amesbury band saw setter, an endless bed double surfacer, and various other machines. The attention this exhibit has received from practical people cannot but result in a large increase of business to its proprietors.

The advance that the South has made in manufacturing machinery is probably better shown by the Chattanooga Plow Co. than by any one concern in the entire building. This company has a very large exhibit of cane mills for sugar and sorghum, some of which can be run by horse-power, others by steam; they have also a patent self-skimmer evaporator, the only one made in which the juice passes from one section to another below the level to the bottom of the pan. In connection with this evaporator, which is portable, is a steel furnace, which is very heavy and strong, that they claim is the heaviest, strongest, and most durable portable furnace made for such a purpose. On one side of this exhibit is the Beaver Run seed cotton cleaner and elevator, which received the highest award at the Piedmont Exposition in Atlanta, 1887. This is the invention of John R. Hopkins, of Norcross, Ga., who is in charge of it and explains its workings to all interested. Mr. Hopkins and his machine together represent the development of Southern ingenuity, and show that when the bright, intelligent minds of this country are directed to mechanism, they will compete with our Northern friends in the turning out of machines that represent intelligence practically applied. Mr. Hopkins says: "I hammer cotton but once and it is clean; lump

locks and frost bitten cotton are made fleecy; about two thirds of the trash and all grass seeds are taken out, and the dust is blown out of the doors, and wet or damp cotton is improved for ginning by ventilation."

H. Brewer & Co., of Tecumseh, Mich., have brick and tile machines, clay crushers, elevators and pug mills on exhibition. Their Perfection brick press is a neat, compact and powerful machine, new in principle and design, and is perhaps the most advanced machine for brick-making that has been introduced to the public, on account of its simplicity, its great power, its compactness, its strength and durability. Its whole power is derived from the short but powerful action of one lever. When ever it is in motion a crowd surrounds it, sees the clay thrown into the hopper and come out in two long parallel lines of bricks. It will make from four to six thousand bricks per day, which pass from it with a fine face front, and edges and corners clearly defined.

All who attended the World's Exposition at New Orleans will remember the improved cotton gin machinery exhibited by the Munger Co., of Dallas, Texas. That concern has an exhibit here, an intensely interesting thing, not only to cotton planters and all interested in that staple, but to the general public, for it is a complete outfit which takes the cotton out of the wagon, cleans it and delivers it to the gin, and then drops it into a self-packing revolving double box press. This exhibit is another illustration of the progress made in inventions made by Southern men.

The drying machine patented and exhibited by Mr. Jno. H. Lorimer, of Philadelphia, attracts a great deal of attention, not for its beauty, but for its usefulness. The strength, the simplicity, the practical value of this is evident to everybody who knows anything about drying machines. It can be modified without trouble, so that raw wool, cotton, silk, flax, jute, rags, yarns in skeins or warps, paper, pulp, grain, fruits and, in fact, everything that needs drying can be treated by it successfully. No air can pass out of the chamber without first going through the material being dried. The air currents are caused by exhaust fans at the side of the machine, so fixed that they drive air through the wet material, thus taking advantage of the law of gravitation as applied to moisture.

E. Van Winkle & Co., of Atlanta, Ga., show cotton-seed oil mills and machinery; also their saw gin and self-feeder, which received the first prize at the Exposition of 1881, and which has won premiums at several State fairs since then.

Talbot & Sons, proprietors of the Sockoe Machine Works, Richmond, Va., exhibit their well known engines and boilers; also the Eagle cotton gin, with adjustable seed-board, made expressly for them by the Cotton Gin Co., of Bridgewater, Mass. This Virginia company was organized in 1839, and has for 50 years built machinery for the South. They have a house in Macon, in this State, which does a very large business, and throughout the South the concern is noted for the excellent quality of everything that it puts upon the market.

Another Atlanta manufacturer who has a fine exhibit here is A. A. De Loach, who exhibits mills for grinding corn and wheat; also mill stones made of the esopus and Brush Mountain stones.

A Georgian by the name of S. B. Riegel, a citizen of Thomasville, exhibits a very ingenious machine of his own invention (patented only last July) for sawing diamond forms in wood. While this is applicable to many things, the chief idea of the inventor was to make a strong, light, effective, durable and cheap fence, in which he has evidently succeeded. His idea is that a small timber post or picket will outlast a large one, which, when green or

when its pores are full of moisture, does not become seasoned so rapidly as the small one, especially when it is confined in a damp place; also that heavy fencing, although thoroughly seasoned when put up, will absorb and hold moisture sufficient to rot it, while the small one will not. So by cutting out with this machine small slender pickets and connecting them with wire, he makes a cheap and what he claims to be a durable fence. There is no doubt about its strength, its cheapness and its neat appearance.

The largest space occupied by any one Northern concern is that of the Granger Foundry & Machine Co., of Providence, R. I., which manufactures bleaching, dyeing, finishing and paper machinery. This well-known company has a fine exhibit that attracts great attention, and has resulted in sales of tenting and other machines.

Although North Carolina has not done herself justice by making a great display in competition with South Carolina, yet some of her enterprising people have endeavored to make amends for what the agricultural department failed to do by introducing exhibits of their own establishments, and by contributing in every way to this Exposition's success. Among these enterprising people is the tobacco house of P. H. Haines & Co., of Winston, N. C., which has erected a tasteful pavilion on one of the main aisles. The roof of this pavilion is thatched with the bright tobacco of the Golden Belt; the supporting columns are made of boxes of plugs; all of the ornaments, and some of them are quite unique and tasteful, are made of tobacco. To give additional interest and uniqueness to the pavilion, Mr. Bush, the courteous manager, has as a pet a live, frisky and exceedingly fat coon, that receives more attention from visitors, and especially from the ladies, than any man in the entire building. This is an exceedingly creditable exhibit, and, as the only one from the Golden Belt of the Old North State, it deserves this much recognition. **B. S. P.**

**SIX LARGE WAREHOUSES.—NORFOLK, VA., Dec. 15, 1888.**—This company will commence work on six large warehouses in this city the early part of January.

CHOWAN &amp; SOUTHERN RAILROAD.

## Prize Competition in House Heating.

The Metal Worker, of New York, offers \$300 in prizes for designs for heating a country house. The designs are to be for heating by hot air furnace, by steam, or by hot water. Two prizes are offered for each class, a first prize of \$60 and a second of \$40 for each. These competitions are in continuation of a series which have taken place for the plan and elevation, the specifications and the estimate of cost for the same house. Plans and conditions are published in the issue of the Metal Worker of December 8.

**SPEAKING** of the vast tracts of pine and cypress in the South that have been purchased by Northerners since 1885, a New York paper says that probably the heaviest owners of these are the Kountze Brothers, bankers, of New York, and their friends, who have control, it avers, of much Texas pine, and also of property at Sabine Pass, which is expected to become the rival of Galveston and the outlet of all Southeastern Texas with its lumber and stock products. During 1885 the purchases of Southern pine in Louisiana and Mississippi, says the same paper, amounted to about 1,500,000 acres, all of which were taken by Northern men, mostly of Western residence. Among the heavy New York purchasers at this time were Ogden and Robert Goeltz, and fully 150 others who took an acreage in this deal, among them being Gen. R. A. Alger, of Detroit; Wirt Dexter and N. K. Fairbank, of Chicago; Senators Stockbridge and Palmer, I. M. Western, Jay Hubbell, Otto Plock, of New York, etc. —Chicago Timberman.



## The James River Iron Ore Belt in Virginia.

[For MANUFACTURERS' RECORD.]

The principal developments in this great ore belt begin near the site of the old Oxford furnace, in the angle formed by the crossing of the Norfolk & Western and the Richmond & Alleghany Railroads, and extending thence many miles down the river in a northeasterly direction, and from one to two miles in width. In this area there are found immense beds or seams of red and brown hematite and specular ore of the highest grades. The red ore, which largely predominates, is all very low in phosphorus, much of it showing a mere trace or none at all. Though generally not so rich in iron as the limonite and specular ores, the purity of these red ores, and the ease with which they are smelted give them a special value in the manufacture of Bessemer steel. These ores were superficially mined a great many years ago for supplying several small charcoal furnaces, the product of which had a great reputation, and was largely used in the manufacture of car wheels, stoves, and other foundry work. But the scarcity of accessible charcoal caused the making of this class of iron to be transferred to other places higher up the river, where fuel was more abundant and cheaper. For a number of years past there has been no mining done in the upper part of this ore belt, but the old workings and some new developments are enough to demonstrate the vast extent and value of these deposits of rich, pure ores. Prof. McDonald, in his "Report of a Geological and Mineral Examination of a Portion of the James River Ore Belt, Under the Authority of the Virginia Military Institute", says: "These ores are evidently bedded deposits, and form an integral part of the stratified series. The distribution of ores was mainly due to original deposition. The whole of the formation is ferriferous, the morite slates and associated epidotes having sometimes as much as 12 per cent. of disseminated magnetic oxides. The strata dip is almost uniformly to the southeast, with varying inclination. Usually the dip is nearly vertical. The vast accumulations of brown hematites and impure manganese oxides that form so conspicuous a feature of the ore belt, are not, as far as I have observed, bedded deposits. They are in proximity to, and probably stand in casual relations to the numerous limestone strata which traverse the ore belt." In the "Report of a Reconnaissance of the Mineral Properties of the Central Virginia Iron Co.," made by Prof. James P. Kimball, Ph.D., F.G.S., he says: "The ores of the James river ore belt are in the form of bedded veins, occupying regular horizons, which are remarkably well defined. They are interposed between strata of different characteristics, which are practically parallel throughout the belt. The ores are disposed in beds or veins between strata of different composition. While specular hematite is the prevailing form of iron ore, some of the deposits are in a state of magnetic oxide; others again are admixtures of magnetic and specular oxides; while others are compact brown hematite, (limonite,) at least near the surface. As large a proportion as often occurs will doubtless be within the standard of first class shipping ores. The thickest portions of the courses of ore seem to be the richer. All of the ores outcropping in the ridges are capable of being worked with greater facility than is generally the case with ores of the same high class in other regions of the United States. Adits and cross cuts may be easily and cheaply driven so as to work backs of ore varying from 50 to 300 feet, and in a few cases of still greater height. Shaft mining may be entirely dispensed with, and would only be advisable when seated in the valleys." After this

general description, let us retrace our steps and notice more particularly some of the chief points of interest. The first in course is the property of the Central Virginia Iron Co., near Riverville, now leased and being worked by the Lynchburg Nail Works Co., which has just built a 50 ton furnace. Many thousands of tons of ore have been shipped from this property. The ore is rich and of superior quality, consisting largely if not mostly of the specular variety. Immediately adjoining is the large tract of Dr. Mundy, a part of which is leased and worked by the Lynchburg Iron Co. for its furnace, where the ore is considered of the finest quality, and yields over 50 per cent. of metallic iron. It lies directly on the line of the Richmond & Alleghany Railroad, which has a short switch extending to the mouth of a tunnel so that the ore is mined at a minimum of cost. Also adjoining this last is the thousand acre tract of the late Dr. Megginson. This is not now being worked, though it was to a limited extent a few years ago. The ore is mainly specular and brown hematite, with some magnetic, in very broad and vertical veins. All of these properties are on the north side of the river. Crossing to the south side and going southwest, following the line of the river, we come to another developed section, unusually rich in valuable ores, mainly of the specular and red hematite varieties, with many large deposits of limonite. While the ore is easily traced for a long distance and through many properties, the best developments have been made on the lands of Mr. Le Grand, Mr. Goff and Mrs. Stone. On Chestnut mountain (embraced in the Goff tract) a splendid deposit of the finest specular ore to be found in the whole belt has been opened and a shaft sunk on it to the depth of nearly 100 feet, showing a vein width of about ten feet. This ore carries about 65 per cent. of metallic iron, with only from 0.008 to 0.015 per cent. of phosphorus. There are also two veins of manganese on the same tract, the quality of which is very fine. On the adjoining tracts of Le Grand and Stone there are a number of great veins or seams of red and brown hematite ores, varying from ten to forty feet in width. Thousands of tons of this red ore were mined many years ago for the charcoal furnaces before mentioned, and a considerable quantity only a few years ago. This last was shipped to the Dunbar Furnace in Pennsylvania and to other furnaces in Virginia, at all of which it was received with the greatest favor. Work was suspended on account of the general depression in the iron business and has not been resumed since.

In a report made by Mr. J. Blodgett Britton, of Philadelphia, on these ores he describes one of the veins as being 25 feet wide, another 34 feet, another 15 feet, another 20 feet, another 10 feet, another 20 feet and another 18 feet wide. The ores described by Mr. Britton are mostly the brown hematites; he says above the average in metallic iron, and carrying from one tenth of one per cent to something over one per cent. of phosphorus. There are many other tracts along this ore belt where there has been more or less work done and where the ore is found in large quantities, but the leading ones only have been mentioned here, as it is not desired to trespass too much on your space. It may be added that the Richmond & Alleghany and the Norfolk & Western Railroads supply ample facilities for transporting these ores to furnaces at home or abroad. Specially is this the case with the ores in the neighborhood of Chestnut mountain, which, being in the angle of these roads, and easily accessible to both, are less liable to be extorted upon. The furnaces of Maryland and a large part of Pennsylvania are within reach of these high grade ores, and they will doubtless

some day draw their supplies largely from this section, particularly those that are best suited for use in making the Bessemer steel and the higher grades of iron. Should Pittsburgh succeed in her ambitious scheme of becoming a great center for the manufacture of heavy cannon, these ores will be the best within her reach for that class of work. The tensile strength of the iron made from these ores, with its fluidity, eminently fits it for such work. Cannon made from this iron for the United States Government many years ago stood every test required, and were pronounced unsurpassed if not unequalled by any made elsewhere.

These ores are only from 8 to 20 miles from Lynchburg, where they will meet the coals and coke by three independent systems of railroads, and by the Norfolk & Western with the Flat Top and Church Valley coal fields of Southwest Virginia; by the Richmond & Alleghany and the Chesapeake and Ohio roads with the Kanawha fields; by the Virginia Midland and the Baltimore & Ohio with the Connellsville coal fields. Thus with three independent and competing lines there is an assurance of a continued supply of fuel at the lowest prices. As the great bulk of freight is eastward the returning empty cars will always afford the cheapest transportation for these ores to the furnace stacks at Lynchburg and for several hundred miles further west. Lynchburg furnaces are now paying only 25 cents per ton freight, with short switches reaching out into the mines. The ore from any part of this belt can be put in Lynchburg at a cost of not over 25 or 30 cents per ton for transportation. As the ore is generally found in high hills or mountains it can be cheaply mined by adits, with no interruption from water. A furnace company owning its ore beds can mine and deliver the ore at the stack for from \$1 to \$1.50 per ton, according to surrounding conditions. An inexhaustible supply of the best limestone can be had for about 50 cents per ton delivered at the furnace. Thus, it will be seen that the conditions favor the concentration of all the materials for making the best quality of iron or steel at the lowest possible prices. But few localities possess equal facilities for such a concentration of materials at so small a cost. But the market for these ores need not be confined to the home furnaces, as they are in easy reach of many of the largest furnaces of Maryland and Pennsylvania, as far West as Pittsburgh. At the latter place they can undersell the ores of Lake Superior, to the best of which they are in no respect inferior in quality. Sleepy old Virginia has been allowed to hide this rich ore field long enough, and it is time that the enterprise of others should now come and do what we are so slow to undertake. Some of the very best properties in this ore belt can now be bought at most ridiculously low prices, when their real value is considered. As an example of this a Pennsylvania iron man a few years ago bought a valuable iron ore property (over a thousand acres) within a mile of a railroad for less than \$20,000, which he told the writer would command over half a million if similarly located in Pennsylvania. He bought it, he said, for his children, as it would be a fortune to them before many years. There are still such opportunities for the profitable investment of capital yet waiting to be taken advantage of.

In addition to the iron ore and limestone there are in the same belt some valuable deposits of manganese, one of which is now being extensively worked by a company. This manganese ore is of very superior quality, much of it being pilot-site of a high grade. It would be profitably mined and delivered to Bessemer steel works at Lynchburg, probably at less than half the price paid for such at

any steel works in the country. The large deposits of manganese in Augusta county, Va., which for years have been worked on a large scale, are also in easy reach of Lynchburg, and would afford an unfailing supply of this material for the largest works. The full development of this rich ore field will one day bring to the fortunate ones who shall do the work millions of dollars as a reward of their enterprise. This is no mere idle speculation. It can not be otherwise. The early future will doubtless see this realized, and the hum of busy industry will be heard through the dull and almost dreary valley of the James.

There are here also two other not unimportant elements of success to the worker in iron. A soil capable of producing the most abundant crops of every description of food for man and beast, with a mild and genial climate disturbed neither by extremes of heat or cold. These climatic advantages are neither few nor unimportant. The cost of comfortable living is thereby greatly diminished, so that lower wages are required to secure the laborer a fair profit on his labor and more substantial enjoyments than less favorable climatic conditions would permit him to hope for, with even considerably higher wages. Other conditions being equal, this region will always have this natural advantage over the cold and inhospitable North. When we remember how great a proportion of a man's labor is required for the comfortable maintenance of himself and family, it will be easy to see that any material reduction in the cost of these necessities is of importance both to the capitalist and the laborer, and may very properly be divided between them to their mutual benefit. It is the surplus which a man is able to save, and not the amount he makes, which measures the degree of his success. The saving in the cost of living in this climate over a much colder one is a handsome profit on a man's labor. With such advantages as have here been pointed out, it is hoped that the James river ore belt will not much longer remain a *terra incognita* to the industrial world, but will take position along with, if not ahead of, the Schuylkill and the Lehigh. Much of the tide now rolling Southward may here find profitable employment for additional labor and capital, with the best assurances of success and comfort.

JAMES RIVER.

## Chattanooga Iron Market.

Specially reported by LOWE & TUCKER, Brokers and Commission.

CHATTANOOGA, TENN., Dec. 17, 1884.

There is a decided conservatism in the tone of the market, and prices are being held very firm from the present outlook. There has been sufficient iron sold by the producers for deliveries to run through the entire coming year, that virtually establishes prices upon the present basis at which iron is being sold at. Many of the furnaces will have no iron to offer on new contracts for some months to come, excepting perhaps such lots as may be made that would class as off grades. The demand for foundry iron is fully up to the capacity of the stacks, and while some are deeming it wise to hold the control of a portion of their output, there are some who are contracting freely for all their make in desirable grades at present figures. Sales are now being made for future deliveries on a basis of \$14 to \$14.50 for No. 1, 60 days, and from 50 to 75 cts. less for No. 2. There is a very active demand just now for No. 3 from the pipe foundries, which is being sold at \$12.50 to \$13, 60 days to 4 months. Freight to Northern and Western points have receded 15 to 20 cts. per ton, to run through this month.

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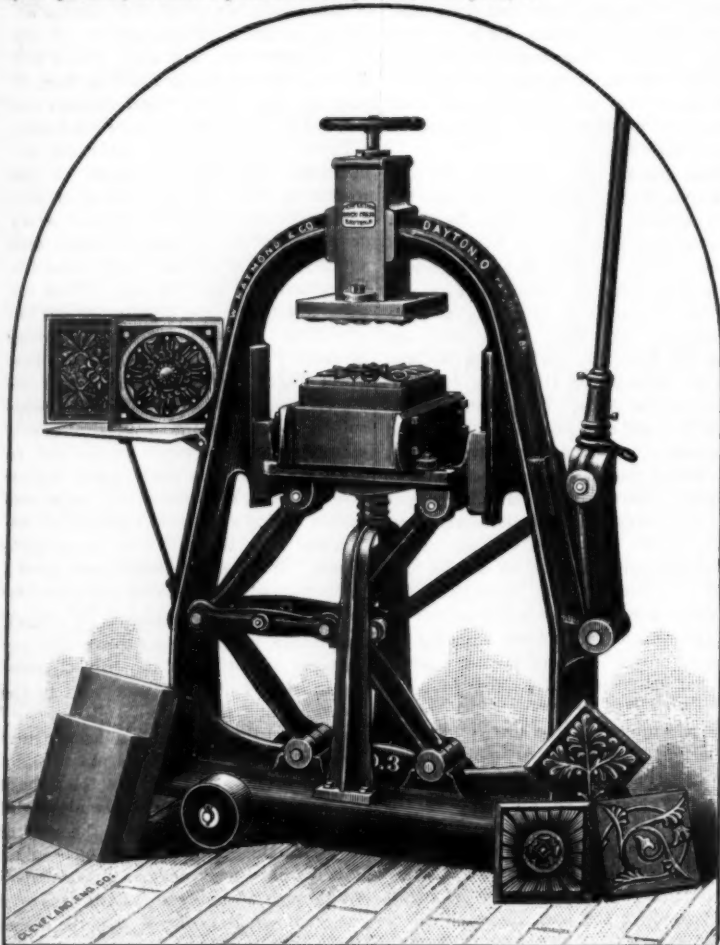


### Special No. 3 Perfection Brick Press.

We present herewith an illustration of the No. 3 perfection brick press, recently constructed to meet a demand for pressing large tiles, paving blocks and the heavier grades of ornamental work. Its weight is 1,500 pounds, estimated pressure twenty

has reduced this complicated process to exactness and simplicity, opened up an inexpensive and exhaustless field of manufacture to the brick maker and made it possible for artistic results to be obtained by those of ordinary means and comparatively little experience.

Further information can be had of the manufacturers, Messrs. C. W. Raymond & Co., of Dayton, O.



SPECIAL NO. 3 PERFECTION BRICK PRESS.

tons. It will work a die 14 by 18 inches and any size smaller. The embellished plates can be used upon each die in endless variety. They are made usually in brass, from designs submitted by the purchaser or furnished by the manufacturers of the press.

Its manner of making ornamental work and terra cotta is clearly shown in the engraving. With one motion of its powerful lever the most elaborate and costly designs are produced, automatically removed from the die and ready for the work of the off bearer. As many as 2,000 of these finished blocks have been made in ten hours on one press.

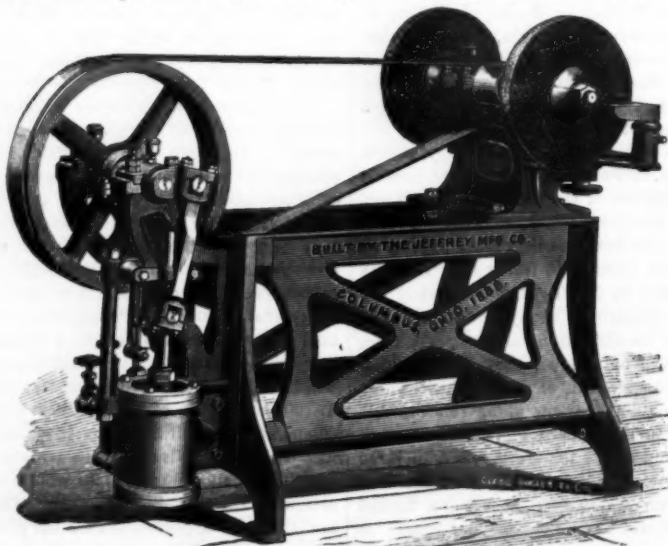
It has been demonstrated that the best results in ornamental work can be obtained where great pressure is employed, thereby solidifying the block, imparting to the surface that lustrous, velvety appearance so much sought for, pressing the most obscure parts into prominence and giving to each block uniformity of size and figure absolutely essential to architectural effect.

The manufacture of ornamental work and terra cotta has heretofore been attended with much difficulty and uncertainty, requiring plaster forms into which the clay is pounded or various loose plates worked in the bottom of the press dies, which, after pressing, must be removed from the block by hand, consuming much time, creating annoyance and in many cases destroying all previous work upon the brick, in fact, the results have in no manner been commensurate with the time and labor required.

Mr. Raymond, by his patented perfection press and system of working soft clay into ornamental and terra cotta designs,

### Emery Grinder and Engine.

We herewith illustrate a very useful piece of machinery, manufactured by the Jeffrey Manufacturing Co., of Columbus, Ohio. This emery grinder and engine is built substantially on an iron frame. The



EMERY GRINDER AND ENGINE.

engine is of a pattern which this company uses in their mining machines—has a 54-inch cylinder and 5-inch stroke, capable of developing 8 horse-power. This grinder can be arranged with one or two wheels, and can also be used, if desired, for driving light machinery. The object of the builders, however, was to get up an economical grinding machine with power attached for

grinding and sharpening tools of all kind, suitable for mining and quarrying work. This grinder is always ready for work, and can be placed in position to suit surroundings. The engine is protected by a heavy sheet iron cover, which is not shown in the accompanying illustration, as the cut was gotten up to show the working parts. For terms and catalogue, address the manufacturers.

### Hand Feed Sander for Bent Work.

The above cut represents a new hand feed sander for straight or bent work, and especially for all kinds of carriage, buggy



HAND FEED SANDER FOR BENT WORK.

and wagon work, bracket and chair work, etc.

The drum is of large diameter and covered with the best material for giving a smooth finish. It is placed between two journals, with the tight and loose pulleys on the outside.

The frame is made of hardwood, in a very substantial manner, the upper part being hinged, thus giving free access to the drum when a change of paper is desired. A ring is provided on the frame below to attach a pipe for taking off the dust. This machine will be found to be

### Iron Cars.

Some months ago the MANUFACTURERS' RECORD gave a full description of the iron cars now being made by the Iron Car Co., of New York, which promise to become an important factor in railroad affairs. In discussing the same subject the American Manufacturer says: "About 3,000 iron cars have already been sold to various railroads throughout the United States. The anthracite coal companies have orders in hand now for about 500. Among the latest railroad companies contracting for these cars are the Chattanooga, Rome & Columbus Railroad Co., the Rome Railroad of Georgia, and the Western Atlantic Railroad Co. These cars have a safe capacity of 60,000 pounds, while

the 20,000 pound wooden cars carry a load of 40,000 pounds. The iron-tube car weighs from 22,000 to 24,000 pounds, according to the size and weight of the freight box. It is estimated that these cars afford a saving of 20 per cent. in the total dead tonnage from the proportion of one to one. These cars remain the same, year in and year out. The Chesapeake & Ohio Railroad Co. have been using them for three years carrying daily 30 tons of coal to Newport News, making a mileage exceeding frequently 2,700 miles per month. Occasionally loads as heavy as 80,000 pounds have been carried, and up to this time no expenses have been incurred for repairs. It is not going too far to say that we are on the threshold of a great change with reference to rolling stock. The Reading and Jersey Central Railroads use 26,339 coal cars, whose average load is 12 tons. The iron-tube cars on these railroads are carrying daily from 25 to 35 tons. The Pennsylvania Co. is experimenting with wooden cars of 30 tons capacity, which are 7,000 pounds heavier than the iron car of light capacity. There are greater economies to be realized by the adoption of cars of this character. The percentage of dead tonnage can be greatly reduced. Authorities who have gone thoroughly into this feature of the question and railroad managers say that there are enormous advantages to be effected by the adoption of the iron car. There are now 800,000 wooden cars in the United States. The peculiar feature of the tube-iron cars is the combination of wrought iron tubes with malleable iron clamps which form a light truss of enormous strength. The breaking strain is ten times greater than the carrying load. Less weight of material is required than in wood, and immensely greater strength, permanence and durability is secured. This car can stand many more times the amount of strain and wear and tear than a wooden car possibly can stand. Graduated springs are used, making the car ride something like a buggy. When empty it is carried on light coils, and when loaded the weight presses down on the heavy coils, which have an ultimate capacity of 100 tons."

very useful in any wood-working concern, paying for itself in a short time.

For further information address the manufacturers, The Egan Co., Nos. 228 to 248 West Front street, Cincinnati, Ohio, U. S. A.

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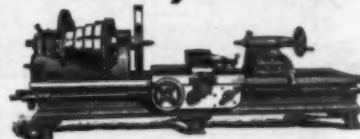
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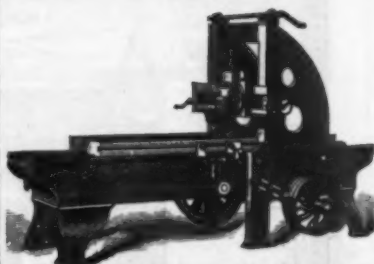
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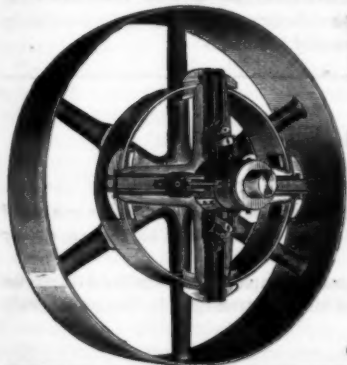


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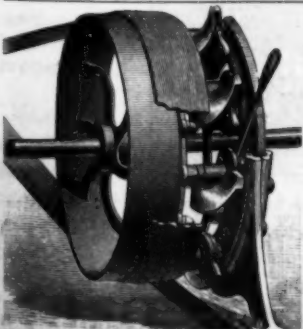


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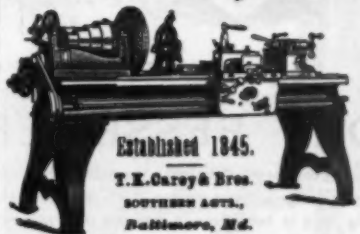


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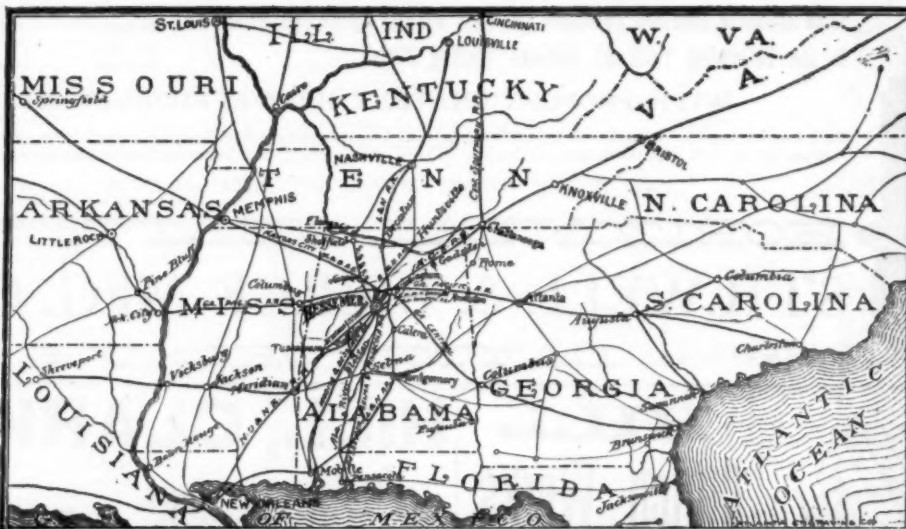


# BESSEMER, ALA.

## WHERE IS BESSEMER?

Located according to its latitude and longitude, Bessemer is in 33 deg. 20' North latitude and 87 deg. West longitude from Greenwich. Its position in the State of Alabama is just above its center and about midway between its eastern and western boundaries. Its position in the Southern States is a noticeably central one. It is midway between Montgomery and Decatur, between Meridian and Chattanooga, Mobile and Nashville, Savannah and Memphis, New Orleans and Louisville, all of which will readily appear from the map published herewith. So far as its geographical location is concerned it could not well be more central, more on the lines of communication and transportation between the leading and principal commercial and manufacturing centers in the South. It has lines of railway leading direct to Texas, via Vicksburg and Shreveport and via New Orleans; to Gulf ports, directly to New Orleans, to Mobile and to Pensacola; to all of the Atlantic ports and to the North, Northwest and West. No city of its age was ever so favored with so admirable, comprehensive and extensive a system, of railway transportation.

On the 13th of April, 1887, the first lot was sold in Bessemer; on the 15th of the following September the place was incorporated as a city, having then a population of 1,500 people. At this time, 1st September, 1888, it has a population of 3,500. It has over 400 different structures, some of them business blocks that would highly credit a city of a hundred thousand population. Over two million dollars so far have been invested in improvements. It has completed the largest rolling mill plant in the South, and two of the largest



## THE RAILWAYS OF BESSEMER.

In an area of four blocks, nine lines of railways center:

The Alabama Great Southern R. R.  
The Louisville & Nashville Min. Line.  
The Bessemer & Huntsville R. R.  
The Georgia Pacific R. R.  
The Kansas City, Memphis & Bessemer R. R.

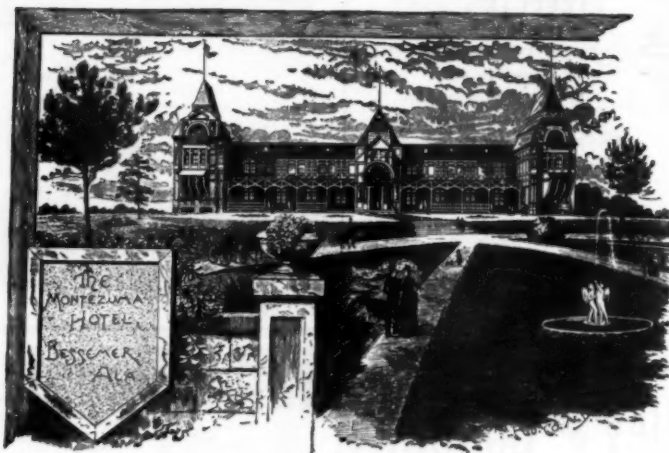
The Bessemer & Tuscaloosa R. R.  
The Bessemer Dummy Line (standard gauge).

All of these lines are running to Bessemer. The Bessemer & Huntsville is completed as far as Village Springs, forty miles on the way up Murphree's Valley, with its ultimate terminal point at Huntsville. It is being rapidly extended.

The Bessemer & Tuscaloosa is completed to Woodstock, a distance of thirty miles, lacking only eighteen miles of reaching Tuscaloosa. At Woodstock this line connects with the Blocton Coal Mines Railway.

The lines of the Bessemer, Selma & Pensacola R. R. and Mobile & Bessemer R. R., now under contract and in process of construction, both center in this area.

The Sheffield & Bessemer R. R. is projected to Bessemer. It is now built as far as Jasper, forty miles northwest of Bessemer.



MONTEZUMA HOTEL, 194x150, OPENED NOV. 1, 1887.

iron furnaces, extensive foundry and machine shops and planing mills. Five more iron furnaces are under contract, three of them with foundations already being laid. An enormous furnace factory, machine shops and boiler works are being located, and will construct the five furnaces mentioned. An enormous fire brick, tile and terra cotta plant is being established; has already commenced the manufacture of fire brick and will regularly employ 200 hands.

## WHY DOES BESSEMER GROW SO RAPIDLY?

Because it presents opportunities for the investment of capital, the establishment of manufactories and industrial institutions and for labor, common and skilled, that are unusual and unrivalled. In Bessemer, pig iron is being made cheaper than at any other point in the United States. The iron ore, the coking coal and the limestone are almost within a stone's throw of the city. The site of Bessemer is superb, unusually attractive, unimpeachably healthy, with thorough drainage and first class water

works. It is already a leading manufacturing point, and is destined to become one of the principal manufacturing centers in the South. Schools and Churches are already established.

The illustrations are of two structures already completed, one costing \$125,000 the other \$40,000. There are a large number of similar structures in Bessemer already completed.



CHARLESTON BLOCK, 300 FEET FRONTAGE, 2D. AVE., BET. 19TH AND 19TH STREETS.

ANY INFORMATION CONCERNING BESSEMER WILL BE PROMPTLY FURNISHED BY THE

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**No. 12 Screw Machine.**

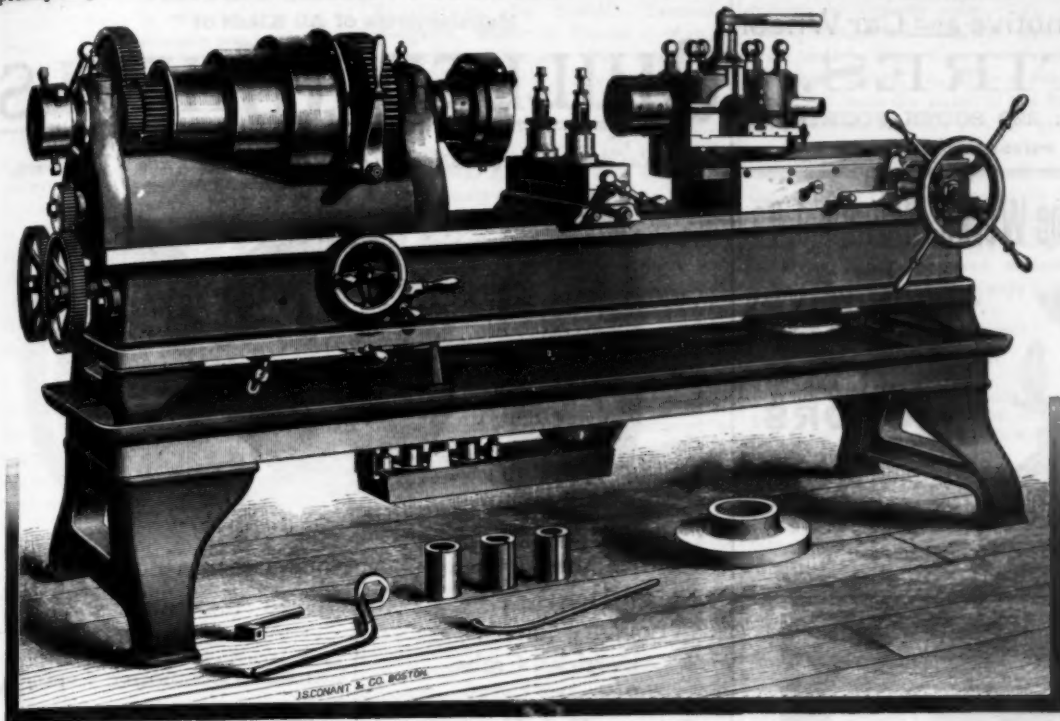
The machine shown in the accompanying cut is said to be the largest complete screw milling machine ever built. It is specially adapted for the heaviest work in

**No. 00 Radial Drilling Machine.**

There having been frequent calls for radial drills not embodying all features furnished in other patterns, the Universal Radial Drill Co., of Cincinnati, Ohio, have

The machine will bore or drill a number of holes parallel with each other, vertically downward, anywhere within the range of the arm. The spindle is geared with unusual power, has quick return, is counter-balanced, and has automatic feed. Will

has both horizontal and vertical flanges and is provided with plain T slots. The dimensions, weights and prices or any further information will be furnished by the manufacturers.



NO. 00 RADIAL DRILLING MACHINE.

**Unquestioning Credulity.**

Now and then a funny thing crops out in the hum-drum monotony of this somewhat dreary world. It is related that a package of bonds was received at the Treasury in Washington from Boston with the numbers cut out. All was a mystery, and the secret service people came in force and held their chins in their hands and looked wise, while the general wonder went around what sort of new trick wicked ingenuity had hit upon to beat the unhappy Government. But the solution is that the owner of the bonds, happening to be in this city at this time, but desiring to present his bonds for redemption, wrote to his wife, directing her to send him their numbers, and to send the bonds themselves on to Washington. The faithful woman followed instructions without inquiring into the reason, thereby setting an example for all Boston wives. She is a relative of the other woman whose husband, having to be absent quite a long time, opened a bank account in her name, and procured for her a neat little check-book, which he presented with careful explanation of the mode of working. Before his return he received word from her that she wanted money; and when he returned and asked about it she said that the hateful people at the bank sent word that they wouldn't let

stationary engine, locomotive and marine engine building.

It is recommended for finished work up to 3½ inches diameter, and will do work of this size with the greatest ease. It will take stock up to 3½ inches diameter. It will cut screws with dies in the turret up to 2½ inches in diameter, and will cut threads with the chasing bar up to 3½ inches in diameter.

The spindle is provided with back gears, which are applied by a clutch operated without stopping the machine.

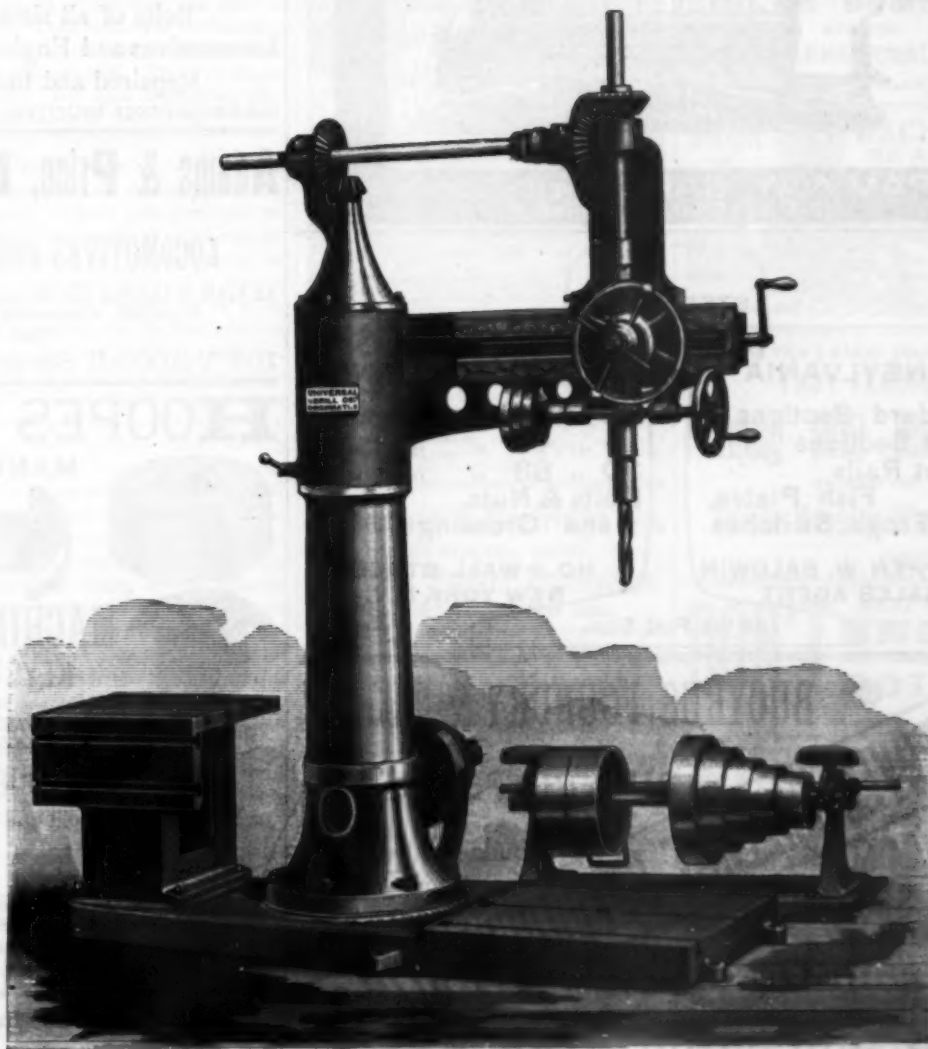
The cut-off rest has a longitudinal feed on the bed, and may be used for turning like the carriage of a lathe. The cross slide has compound motions, and is operated by a screw.

Each machine is provided with clutch back gears, chasing apparatus, self acting feed for milling, and longitudinal feed for the cut-off rest, a countershaft with friction pulleys, a chuck, a face plate, three change gears for the feed, suitable wrenches, a box tool, bushings for the turret holes, a chuck for the back end of spindle, a die-holder and a stop gauge.

When made with chasing apparatus, one hob (including leader, follower and cutter) is furnished with the same.

Length of bed is 8 feet 6 inches; swing over bed, 24 inches; weight, 6,200 pounds; hole in spindle, 3½ inches diameter; six holes in turret, 37-16 inches diameter; diameter of turret, 16½ inches; length it can mill, 14½ inches; diameter of spindle cones, 9, 12 and 15 inches, and 5 inches face; large bearing, 6 inches long, 4½ inches diameter; small bearing, 4½ inches long, 4 inches diameter. Messrs. Hill, Clarke & Co., of Boston, are the general selling agents.

MANAGERS of mills, factories, furnaces, mines, etc., and parties starting manufacturing enterprises, and needing machinery or supplies of any kind, will find it profitable to consult the advertising columns of the MANUFACTURERS' RECORD. Its pages contain names of the best houses in the country among manufacturers of and dealers in machinery and mill supplies.



NO. 13 SCREW MACHINE.

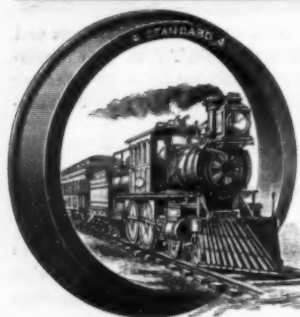
designed and are producing a machine to supply this demand, shown in accompanying cut. It is strong, bold and pleasing in proportions.

It is a first-class tool at low price, not costing, it is said, more than many upright drills of half the capacity.

readily bore holes in solid cast iron 3 inches in diameter. The column which carries the arm, driving gear, spindle frame, etc., is bolted fast to base plate, making it perfectly rigid and firm. The arm is pivoted at top of column and has radial movement of over three-quarters of a circle. The table

her have any more. The husband looked over the check-book and cried out: "No wonder they wouldn't—you've over-drawn already." "So the bank people said," responded his spouse, "but I know better, for the checks in the book aren't half gone yet."—Stockholder.





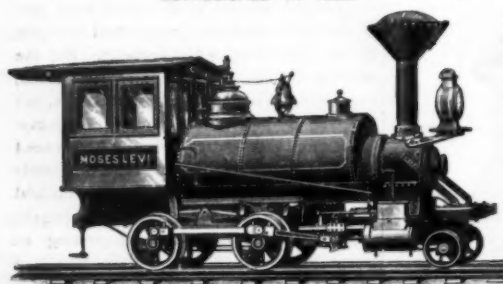
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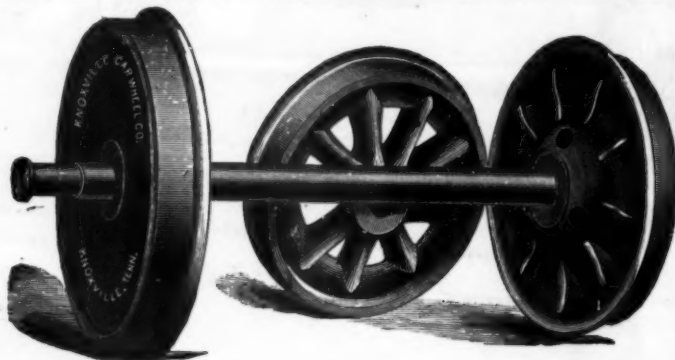
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## CHILLED WHEELS

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Bolts of all sizes.  
Locomotives and Engines  
Repaired and Indicated.

Steel and Iron Boilers,  
Guild's Automatic  
Boiler Cleaner,  
Car and Locomotive Castings,  
Soft Iron Castings of all kinds.  
Heavy Castings a specialty.  
Wheels mounted on Axles if  
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and Bolts.

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MANUFACTURERS OF

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improved. Contractors for all classes of Light and Heavy Castings.

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Bridge Rivets,

WASHERS,

Split and

Tank and Coopers'

Single Keys.

RIVETS.

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MANUFACTURING

Whiting's Improved Car-Wheel Foundry Plant, Improved Cupola,  
Improved Overhead Steam Crane, Improved Car-Wheel Chills,  
Improved Transfer Trucks, Improved Device for  
Operating Foundry Ladles, Improved  
Reversible Friction Gearing.

Steam and Power Cranes' Castings of all Descriptions, Ladles, &c.



## TRADE NOTES.

THE Glamorgan Co., of Lynchburg, which established an iron pipe foundry about a year ago, has made such a great success of it that it is to be enlarged at a cost of \$35,000. The Glamorgan people are pushing, enterprising men, and are building up a great industry at Lynchburg.

W. H. HOWCOTT's timber land agency, 194 Common street, New Orleans, has 500,000 acres of long-leaf pine, cypress and hardwood timber land on hand for sale and at such prices as to attract investors. Mr. Howcott is probably one of the best posted timber men in that section of the South, and the selections he has made to offer to investors are said to be the best that can be found anywhere in the South.

THERE is a general increase all through the South in the creamery business, and the demand for machinery for butter-making is yearly growing. Mr. John S. Carter, of 47 and 49 W. Jefferson street, Syracuse, N. Y., has issued an attractive pamphlet of "The O. K. Butter Making Outfit," illustrating and describing complete outfits of creamery machinery. It will prove of great interest to all who contemplate establishing creameries.

## Literary Notes.

IN the prospectus which we received recently from the Youth's Companion office, we notice an array of noted contributors which promises unusual excellence for the coming volume. First among them is the Right Honorable W. E. Gladstone, affectionately called the "Grand Old Man," the greatest of living statesmen, who writes on "The Future of the English Speaking Races." Then General Lord Wolseley, who will tell of his strange personal adventures in the field with the British armies. Then Professor Tyndall, and Justin McCarthy, who writes of "Leaders in the House of Lords," Archdeacon Farrar on "Musicians and Their Struggles," and Professor Huxley. Among American contributors we find such well-known names as Lieutenant Schwatka, who writes of "Tight Pinches in the Arctic," Andrew Carnegie on "Bits of Advice to Young Men," Dr. Austin Flint, Judge Oliver Wendell Holmes, Jr., on "Young Men in the Law," Admiral Luce, Col. Thomas W. Knox, James Parton and at least one hundred others. The Companion is a welcome visitor weekly in more than 400,000 families, and has won a place in home life obtained by no other publication. The wonder is how any family can do without it. The publishers announce that any new subscriber who sends \$1.75 now, can have the Companion free every week to January 1, 1890, and for a full year from that date.

ONE of the most sumptuous holiday books of the season comes from Messrs. Houghton, Mifflin & Co., of Boston, who have published in magnificent quarto shape Longfellow's poem, "The Courtship of Miles Standish," richly illustrated by eminent artists, and beautifully printed and bound. The most important of the illustrations are six full-page drawings by Mr. Frank T. Merrill, which are admirably reproduced by photogravure. There are half a dozen effective drawings by Mr. George H. Boughton, who is not surpassed in his appreciation of the Puritan character, and in the artistic feeling with which he represents it. There are also drawings by Mr. Granville Perkins, Mr. C. S. Reinhart, Mr. J. D. Smillie, Mr. J. E. Baker, Mr. F. H. Shapleigh, Mr. D. C. Hitchcock and Mr. G. F. Barnes, besides a drawing of the Standish spring from a sketch by Mr. Justin Winsor. The paper is rich, heavy and of exquisite finish, the type and margins are harmonious, the press work is beyond praise, and the binding is unique, striking and artistic. Altogether, it is a holi-

day book that one would enjoy giving away to his dearest friend, or finding among his own treasures on Christmas morning, with about equal satisfaction. Price \$6.00

ANCIENT ROME IN THE LIGHT OF RECENT EXCAVATIONS, by Rodolfo Larciani-Houghton, Mifflin & Co.—is a work of extraordinary interest. The wonders of ancient Rome are laid bare, and the fascinating history of that wonderful city is made more interesting than ever. Illustrations are given of old ruins and great works which recent excavations have brought to light. Nearly forty full-page plate illustrations are given, and many smaller ones. The scope of this work may be seen from the titles of the chapters. It opens with "The Renaissance of Archaeological Studies," and this is followed by "The Foundation and Prehistoric Life of Rome," "The Sanitary Condition of Ancient Rome," "Public Places of Resort," "The Palace of the Cæsars," "The House of the Vestals," "The Police and Fire Department of Ancient Rome," &c. These headings will give some idea of the wealth of information presented in this volume. It is a book of over 300 pages, splendidly gotten up, and reflecting great credit even on such a famous publishing house as that of Houghton, Mifflin & Co.

THE perfection to which the production of holiday cards has been brought by Messrs. L. Prang & Co., of Boston, is a credit to America. Their Christmas cards for this year, like those of former years, are remarkably attractive. Many of the designs, by leading artists, are particularly fine, and the workmanship is of the same high grade as heretofore. Their cards cover a wide range, from the simple and inexpensive to the costly satin painted ones. Their catalogue, which will be sent upon application, gives full information as to these cards.

"FROM YEAR TO YEAR."—One of Raphael Tuck & Sons' calendars for the year 1889 is really a gem. It is in book form, and designed by J. Pauline Suter, with couplets by Helen M. Barnside. January shows two little girls who come timidly along drawing behind them a little wagon full of dolls; they hold one another by the hand and look as pretty as they are innocent, their hair flustering in the breeze and falling in masses over their foreheads, their chubby little faces aglow with good nature, and even dolls laughing. Their appeal—"Could we stay this year with you"—could not be refused by any one. They evidently stay the year, for in the pages that follow they are shown in various occupations, feeding the birds, plucking wild flowers, rollicking in the grassy fields, and sitting by the seashore, making little rivers in the sand. On the page between June and July there is a picture of a milestone almost hidden by the flowers, but on which the inscription "Half Way" can be seen. Throughout the calendar they are dressed in costumes appropriate to the different months of the year. In April they take refuge from the showers 'neath umbrellas; in May they fall asleep among the daisies in the field as they murmur:

"Nodding, nodding, to and fro,  
In the grass the daisies grow."

In December they depart, muffled up to protect themselves from the cold, their satchels on their arms; and as the hands of the clock point to midnight they say:

"We hope you have had a pleasant year."

The last page of the calendar has a candle burnt almost to the bottom, and is just dying out, indicating the close of the year.—ART STATIONER.

This charming calendar book for 1889 has 18 pages of color and monochrome illustrations, gold edged, silk cord and tassels. A dainty gift it is, indeed. It is to be had at all first-class stores throughout the United States, or mailed to any address on receipt of 50 cents. Address Raphael Tuck & Sons, 208 Broadway, New York.

## Wonderful Results.

Over ten thousand tons of soft open-hearth steel have been made from a single furnace without repairs at the Carnegie Homestead Works, and the furnace is still running in first-rate order. This open-hearth furnace was built with pure silica brick made by Isaac Reese, at Manorville, Armstrong county, Pa. It is a wonderful result and beats the record of the English imported brick over one hundred per cent.

If you go to New York you will find the Grand Union Hotel, opposite the Grand Central Depot, a good place to stop. You can get an excellent room for \$1 a day. The restaurant is first-class and moderate in price. The fact that it is always full is the best argument in its favor.

## Important.

When visiting New York city, save baggage express and carriage hire, and stop at the Grand Union Hotel, opposite Grand Central Depot.

600 handsomely furnished rooms at \$1 and upwards per day. European plan. Elevators and all modern conveniences.

Restaurants supplied with the best. Horse cars, stages and elevated railroads to all depots. You can live better for less money at the Grand Union Hotel than any other first-class hotel in the city.

TOURISTS will find the American House, Boston, a most convenient point from which to visit places of interest. It contains a large number of suites of rooms particularly adapted to families traveling.

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ADJUSTABLE FIRE BACKS AND LININGS FOR COOK STOVES.  
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COTTON SEED OIL MILLS  
RICE MILLS  
MINING SCREENS &c  
THE ROBERT AITCHISON  
PERFORATED METAL CO.  
76 Van Buren St. Chicago



OFFICE MANUFACTURERS' RECORD,  
BALTIMORE, December 19, 1888.

Baltimore Charcoal Wheel Iron.....	\$18 00	\$9 00
Virginia C. B. Charcoal Wheel Iron....	18 00	9 00
Anthracite, No. 1.....	17 00	8 00
"                  "                  "                  "	17 00	10 00
"                  "                  "                  "	15 00	16 00
"                  "                  "                  "	14 00	—
"                  "                  "                  "	14 00	—
Steel Rails.....	13 00	10 00
Old Rails.....	13 00	14 00
Old Steel Rails.....	10 00	12 00
No. 2 Wrought Scrap.....	18 00	18 50
Old Car Wheels.....	18 00	19 00

### Philadelphia Iron Market.

Taking the iron market as a whole, it is steady. No new features have developed. Gray forge remains at \$16 to \$16 50; No. 1 foundry \$18 to \$19; No. 2 \$17 to \$17.50. Choice brands are so far sold ahead that buyers find it exceedingly hard to obtain them, excepting at higher figures than are now quoted. Makers being well fixed, are not anxious to book additional orders excepting at their own prices. Foreign material is meeting with but little inquiry. Muck bars are sold in small lots at \$29 50; large lots could be booked at \$29. Buyers seem to be supplied for the present. Large car iron orders are about to be placed. Some very heavy ones will probably be placed during January. Quotations: Common and medium 1.75 to 1.85 cents, respectively. Best refined iron brings 1.90 cents. Plate and tank iron is quoted at 2 to 2.10 cents. The market at this writing is dull. The prospects are for a heavy demand after the first of the year. Shell 2.40 cents; flange 3.50 cents; fire box 4 cents. Large orders for structural iron are few and far between. Bright hopes are indulged in concerning the placing of large orders at an early day. Prices: bridge plate 2 to 2.10 cents; angles 2 to 2.10 cents; tees 2.50 to 2.70 cents; beams and

## Cincinnati Iron Market Report.

本報·廣告·服務部 廣告部經理部

FOUR.			
Strong Neutral Coke.....	\$14	75	00
Mottled " " .....	14	00	50
Cold Short Coke .....	14	50	00
CAR WHEEL AND MALLEABLE.			
Southern Car-Wheel Iron.....	20	00	25
Hanging Rock Cold Blast .....	20	00	25
Lake Superior C. W. and Malleable .....	21	50	50

<b>HOT BLAST FOUNDRY IRONS.</b>					
Southern Coke, No. 1.....	\$16	00	@	16	50
" " " " " "	15	75	@	15	75
Mahoning Valley Lake ore mixture...	74	75	@	15	25
Southern Charcoal, No. 1.....	18	00	@	18	50
Missouri " " " "	17	00	@	17	50
" " " " " "	19	50	@	19	50
" " " " " "	19	00	@	19	50

FORTH IRONS.		
Neutral Cks.....	\$14	50 15 00
Cold Short.....	14	00 14 50
Mottled.....	33	75 13 75
CAR WHEEL AND MALLEABLE IRONS.		
Southern (standard brands).....	\$25	50 25 00
"    (other brands).....	18	00 18 50
Lake Superior.....	23	50 23 50

Southern Coke, No. 1 Fdy., new class..	\$16	25	16	75
" " No. 2 " " " "	15	75	16	25
" " No. 3 " " " "	15	25	15	75

### St. Louis Iron Market.

ROYAL ST. FOUNDRY.			
Southern Coke, No. 1.....	\$16	75	37 75
" " No. 2.....	16	00	37 00
" " No. 3.....	15	50	36 16
" Charcoal, No. 1.....	18	00	39 00
" " No. 2.....	17	50	38 50
Mason's No. 1.....	17	50	38 50
Missouri No. 2.....	17	00	38 00
Onio Softeners.....	17	00	38 00

FO GE.			
Mottled.....	14	00	15 50
Missouri.....	13	50	16 50
CAS-WHEEL AND MALLEABLE IRON.			
Lake Superior.....	20	00	23 00
Southern.....	22	00	24 00
Connellsville Coke, (East St. Louis)....	4	75	—
(St. Louis).....	4	50	—

A little better feeling is noticed than was prevalent a week ago. Enquiries for large blocks of iron have been under considera-



**The Candy Belting Co.**  
BALTIMORE, MD.

**73 & 75 Ohio Street, CHICAGO, ILL.**





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NO CHARGE FOR TRIAL SAMPLES.



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Outfits and Machinery for Cheese Factories.

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Fine Iron and Steel Castings Made to Order.

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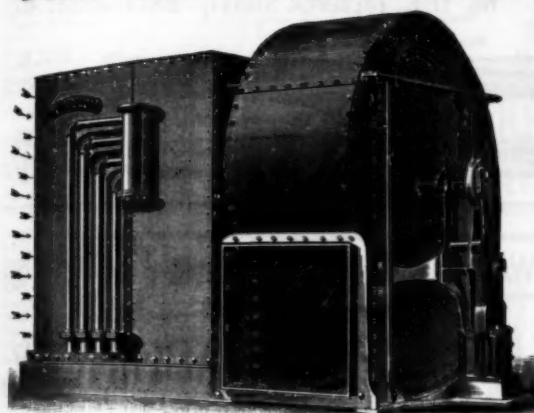
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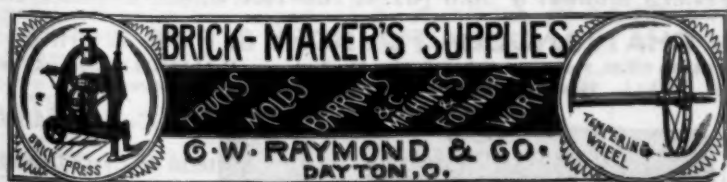
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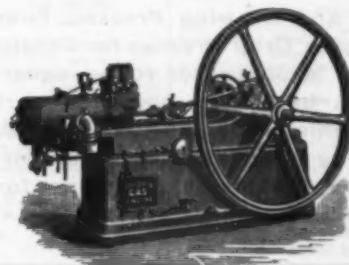
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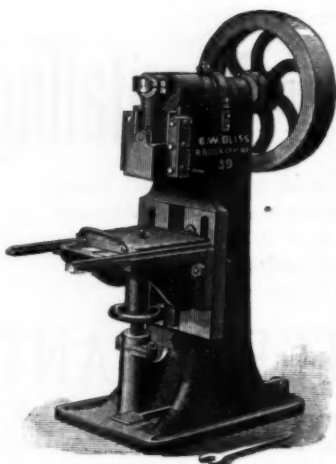
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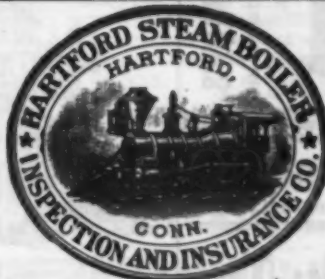
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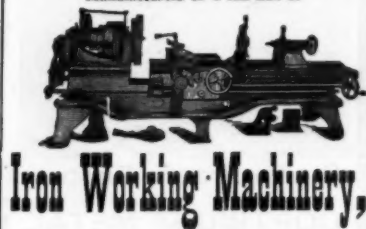
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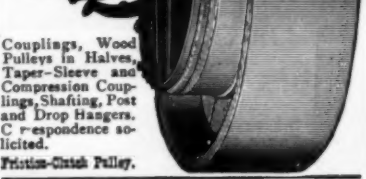


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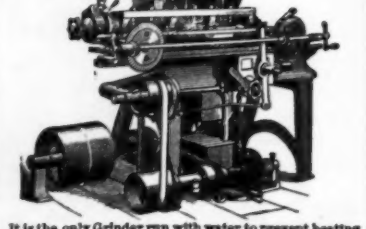
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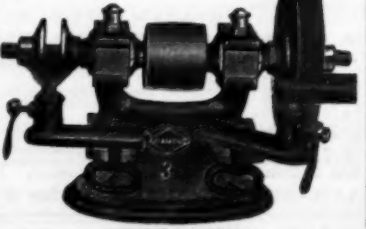


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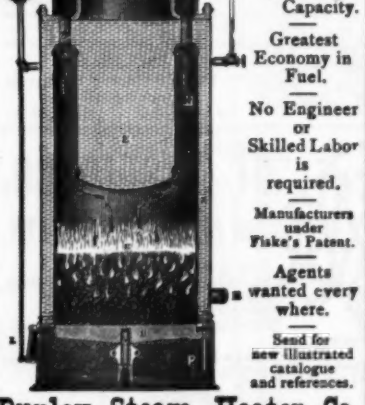
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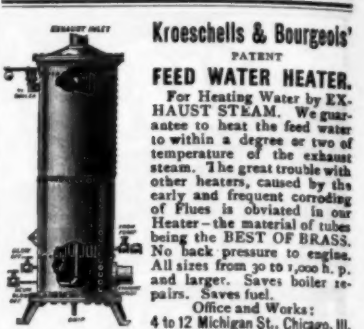
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## How Saws Are Made.

## Cutting the Teeth, Tempering, Grinding, Polishing and Truing.

Ordinary circular saws, says a writer in the Pittsburgh Dispatch, are of all sizes from six inches to six feet in diameter. The plates from which they are made come from the steel mills in circular form, almost round, if not perfectly so. The first thing to be done is to see that each plate is made a perfect circle. A hole is then cut in the center and the teeth are marked around the rim. The plate is then taken to a big machine on which the teeth are to be cut. It is placed upon a pin at such a distance from the machine that the edge comes beneath the die and the operation of teeth-cutting begins. It requires a powerful machine to do this work, as the steel is cut cold, each tooth being made from one blow from the heavy iron jaw. All sizes and descriptions of dies are necessary, as the styles of saws and saw teeth are many.

After the teeth have been cut—and the work is quickly done—the next operation is that of tempering, which is not only the most particular but also the most important job in the making of a saw. The tempering furnace is a sort of oven, heated by natural gas. Several saws are placed in the furnace at a time and allowed to remain until the eye of the experienced workman tells him they have reached the proper temperature. This he knows by the color of the glowing metal—when it becomes a light cherry-red the plates must be taken from the oven and plunged into a vat of whale oil. A few words about this vat and how it is prepared for its work. When the cover is removed the receptacle is seen to be nearly full of a thick, dark-colored oil liquid, which must be warmed to a certain degree before the saws are put in. The vat is got ready while the plates are heating. The manner of warming the viscid, clammy oil is peculiar. Pieces of red hot iron or steel are placed in the vat, one after another, until its contents are properly melted. As each piece is dropped in a brilliant flame leaps from the surface of the oil and continues to burn until extinguished by stirring the liquid with a long iron rod. When all is in readiness and the large, glowing plates cautiously slid into the vat, the effect is beautiful. The flames leap higher than ever, and the oil rages and seethes like a witch's cauldron. Leaving the tempering department, the saw goes back to the main shop to be hammered and straightened ready for grinding. This work is done with hammer and anvil and requires much care, skill and precision. After the plate, which had been more or less warped during the tempering process, has been made perfectly straight again, it is placed in the grinding machine to remove all superfluous metal and reduce the saw to the required thinness. Here the saw is made fast on a carriage between two wheels, which turn it and at the same time press its sides against a rapidly revolving grindstone. The carriage is fixed in automatic bearings, and is moved back and forth at the will of the operator. It usually takes about two hours to grind a five-foot circular saw, though the time varies according to the kind of saw that is being made.

The next operation is that of polishing, which is done with emery wheels. To polish a large circular saw the plate is secured to a large wheel or flange, which turns, carrying the saw with it, the workman meanwhile pressing an emery ball (attached to a handle) against the side. The saw must then be "rounded;" that is, care must be taken to prevent one tooth projecting further than the others. For this purpose the saw is placed in a bearing and made to turn slowly. It is then gradually

brought in contact with an emery wheel, the latter turning very swiftly, until the edge of every tooth touches the wheel. The saw is next sharpened and submitted to further hammering for the purpose of "truing" and straightening, and is then cased, ready for shipment.

One important part of the sawmaker's business is the renovation of old saws. As everybody knows, saw mills belong to that description of buildings which are most frequently destroyed by fire. After the mill has been reduced to ashes the saw is usually found somewhere among the ruins, warped and scorched out of all semblance to its former self. But although the mill is complete ruin, the saw is not, in spite of its damaged appearance, and back it goes to the manufacturer to be straightened up, tempered over again and provided with a new set of teeth. What might be styled the dental department of the saw works renders as good service to the proprietor of saw mill machinery as regular dentists do the owners of defective teeth. A saw wears down rapidly with use, and the time inevitably comes when it must return to the shop and get new teeth, else its usefulness for cutting logs will be gone forever. This happens again and again, until the saw is completely worn out, or at least reduced to dimensions that make it no longer serviceable.

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By Arthur Sherburne Hardy, author of "But Yet a Woman," etc. This began in the September number, and will continue until April.

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COMMERCIAL AGENTS OF

**THE CONSOLIDATED ELECTRIC LIGHT COMPANY.**

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The DYNAMO of this Company is AUTOMATIC in its regulation, and will maintain a UNIFORM LIGHT, with ALL or ANY PORTION of the lights in circuit. Our LAMP will not BLACKEN and will MAINTAIN its CANDLE POWER during its Guaranteed life. Plans and Estimates furnished for all kinds of Incandescent Lighting. ESTIMATES FURNISHED FOR THE THOMSON-HOUSTON SYSTEM OF ARC LIGHTING.

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From 1-4 to 15,000 lbs. Weight.

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**BRADLEY'S UPRIGHT CUSHIONED & HEATING FORCES HELVE HAMMER**

With a manufacturing experience of over half a century, we recommend these machines to be the best, simplest, most durable and combining all the essential elements.

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**OUR PATENT ROLLER FLOURS**

Are manufactured from the CHOICEST WHEAT OBTAINABLE, for which Baltimore as a market stands pre-eminent. Their superiority for UNIFORMITY, STRENGTH and UNAPPROACHABLE FLAVOR has long been acknowledged. Our PATAPSCO SUPERLATIVE PATENT STANDS UNRIVALLED. Of a rich creamy color, it makes a Bread that will suit the most fastidious.

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To Secure **SOUTHERN TRADE**  
ADVERTISE IN THE  
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## TRADE NOTES.

THE New York Belting & Packing Co., pioneers in the manufacture of vulcanized rubber belting, packing and hose, find their business steadily increasing. They have recently opened a branch house in San Francisco, Cal., which will be under the control of Messrs. Arnett & Rivers, and located at 17 and 19 Main street, that city.

THE H. A. Williams Co.'s syphon oiler is meeting with the highest appreciation and success. They commenced its manufacture a little over one year ago, and since that time have placed them in over 100 mills in New England alone; besides this, a large number have been sold through the supply men to mills in other States. During the last 14 months an aggregate of 20,200 cans have been distributed among users.

THE Avery Stamping Co., special metal workers, Cleveland, O., formerly the Avery Elevator Bucket Co., have issued the following notice: "Owing to the very large extension of our line of manufacture, we have considered it advisable to change our corporate name. We shall still continue to make our patent seamless steel elevator buckets a prominent feature of our business, and when we are settled in our extensive new works, about the 20th of December, will be prepared to do the most intricate stamping and shaping of metals ever attempted in any country."

THE scarcity of manganese, and the very few places where it is found in sufficient quantity to pay for mining, has caused a constant search for this metal. In Arkansas some very extensive manganese property has been opened up of late years, partly by leading Pennsylvania steel men. That State promises to become a center of large manganese mining operations. Mr. Robert W. Worthen, of Little Rock, advertises in the MANUFACTURERS' RECORD for sale "320 acres of land upon which a well-defined vein of manganese has been exposed." This land is located 4 miles from one leading railroad and directly on the line of another now building.

THE Vulcan Iron Works, of this city, have been awarded by the U. S. Navy Department the contract for 18 steel shafts and crank shafts for the U. S. monitor Monadnock, now being rebuilt in San Francisco, at their bid of \$7,290. They have also been awarded by the City of Chicago the contract for all brass castings, about 15 tons, required for the ensuing year; also an order from Mr. C. S. Barker, of Duluth, Minn., for one of their largest size dredging machines, and for a clam-shell derrick for Moffett, Hodgkins & Clarke, of Watertown, New York. They are also finishing the machinery for a bridge for the Oregon Railway & Navigation Co., at Riparia, Washington Territory, for a draw-bridge of novel construction. The entire bridge, when in operation, will be supported on a liquid (oil) center bearing, and steadied by eight rollers, mounted on springs. The shop tests were very satisfactory.—Chicago Industrial World.

THE Jarvis Engineering Co., Boston, Mass., have had a very large run of business the past year. Among the steam plants completed during the past year are Richmond Street Railway, Richmond, Va., (Sprague system); Meriden Horse Railway, Meriden, Conn., (Daft system); Third Ward Railway, Syracuse, N. Y., (Thomson-Houston system); West End Street Railway, Boston, Mass., (Sprague system); besides 18 complete outfits for electric light stations, from 150 to 500 horse-power each, all of which were supplied with the Armstrong & Sims engine belted direct to the dynamos, and boilers set with the Jarvis patent set

ting for economy of fuel. The Jarvis Co. write us that "there seems to be unusual activity in manufacturing interests in this section for the time of the year. There is a general feeling of satisfaction in regard to the probable settlement of the tariff question shared by all parties, which is very encouraging to the manufacturers."

RECOGNIZING the imperfections and the changes to which the ordinary commercial electric measuring machines are subject, the Mather Electric Co. has arranged a special testing laboratory, fitted up with standard instruments, by which currents, potentials and resistances are measured with all the accuracy and certainty with which such measurements are made in the best physical laboratories. The standard instruments used, depending for their indications upon the earth's magnetic field, need to be placed where they are not subject to any variable magnetic influences, and a small building was, therefore, erected at a distance of some hundred feet from the factory, and beyond the influence of the magnetic effect of the masses of iron, dynamo machines, etc., and in order to prevent any possible influence, the building itself was constructed without iron, copper nails being used, and the window fastenings and steam pipes, etc., being made of brass. The instruments employed were made in the Mather Co.'s shops, and so constructed that while they are instruments of the highest possible precision, readings may be taken by means of them with the same facility as with the ordinary commercial instruments. A number of wires leading from the factory to the laboratory enable the currents and potentials of any machines under test to be directly measured by these standard instruments, and a switch-board in the factory is so arranged that any machine may be at once connected with the laboratory for any measurements which it is desired to make. The laboratory is one of the best in the country for electrical measurements, and commercial instruments are being constantly received for calibration and adjustment. The laboratory is very valuable to the company in the various tests that are being made upon their machines and apparatus.

## Liability of Employers.

The Globe Democrat, of St. Louis, in discussing the liability of employers, says: "Under the common law and by special statutes any employer of labor is liable to have an action brought against him in respect of personal injuries sustained by a workman through any cause connected with his occupation, the liability contemplated by the law being very frequently increased by the prejudice and sympathies of juries—by their finding all disputed facts against the employer and in favor of the employee." It then gives many decisions where employees have recovered heavy damages due to the negligence of superintendents, negligence of other employees, dangerous appliances used, unsafe machinery, even if employee knew that it was unsafe, falling through hatchway, etc. The losses resulting from suits of this kind are often so heavy that it is as much in the line of business prudence for employers to protect themselves from loss of this character as from fire or other hazard usually insured against. With a view of relieving such liability, "The Employers' Liability Assurance Corporation, of London, England, issues policies insuring against any damages employers may be required to pay on account of accidents to their workmen (male and female) within certain limits. Although a new feature of insurance, a great many policies have already been issued. The rates are said to be very reasonable, and will be given with full particulars upon application. An advertisement of the company will be found in the MANUFACTURERS' RECORD.

THE Sigourney Tool Co.  
HARTFORD, CONN.

One, Two and Three  
**Spindle  
DRILLS.**  
Sensitive,  
**STRONG**  
—AND—  
Workmanship  
**UNEQUALLED.**

Special Machinery, Tools, Models, &c.  
Built by Day or Contract.

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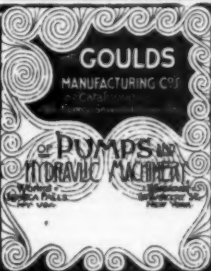


LATELY  
**IMPROVED.**  
Just the thing to shift large belts driving Dynamos, Blowers, Gins, Saws, &c. Belt stops and slackens when machine stops. Thousands in use, cost very low. Sent on trial. Permit us to quote you prices.

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PILE DRIVERS.  
VULCAN IRON WORKS, Chicago.**  
Send for our new catalogue.



We want to place our new No. 14 Illustrated Catalogue and Price-List in the hands of every responsible dealer in hardware, agricultural implements, stoves and tin, plumbing supplies, etc., in the United States who may not have received copy. Manufacturers, architects and builders referring to this card will also be furnished copies free. It is a complete treatise of our Pumps, Engines, Rams and Hydraulic Machinery, illustrating their adaptation for manual, animal, wind, water, steam, oil, gas and electric power.

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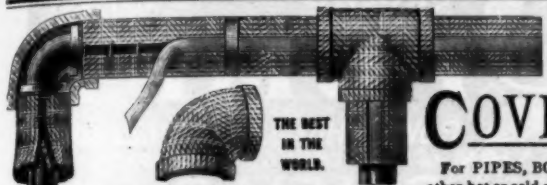


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Under their own patents and those of Samson Fox, Leeds, Eng. Made in all sizes with flanged or plain ends.



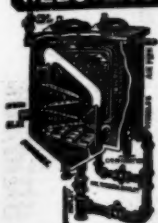
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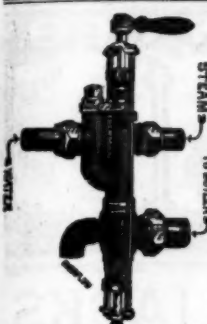
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OPERATES BELOW ATMOSPHERIC PRESSURE.

Converts the water to be purified into vapor, and thence back into water, preventing any loss of heat units. Feeds Purified Water to the Boiler at a temperature at or just below the point of vaporization, preventing scale, removing back pressure, increasing power and steam, saving coal, water, labor and space. Has received the endorsement and approval of the highest mechanical engineering talent as being thoroughly adapted to the purposes for which it is being introduced. Duplicate orders have already been received from such well-known firms as the Phoenix Iron Co., Phoenixville, Pa.; Pencoyd Iron Works, Pencoyd, Pa., and New Jersey Steel & Iron Co., Trenton, N. J. Descriptive pamphlet for further information. We respectfully solicit your orders, subject to 30 days' trial, if accepted, to be paid for.

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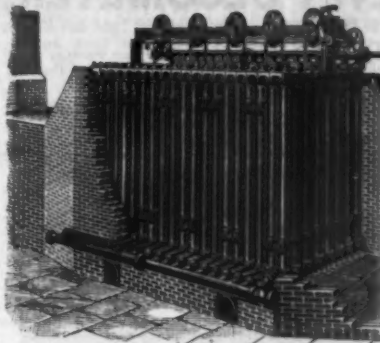
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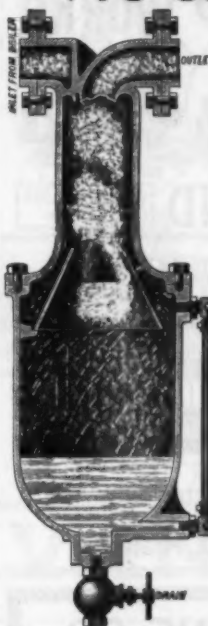
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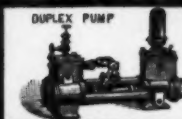
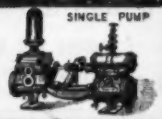
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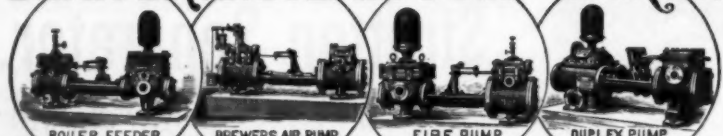
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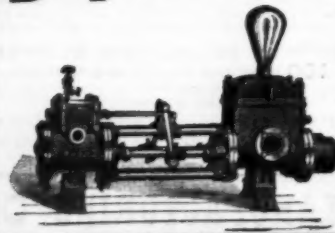
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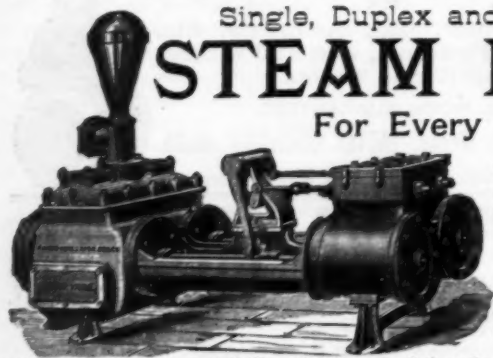
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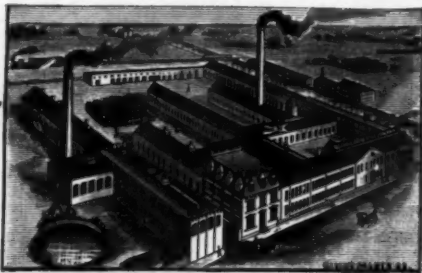


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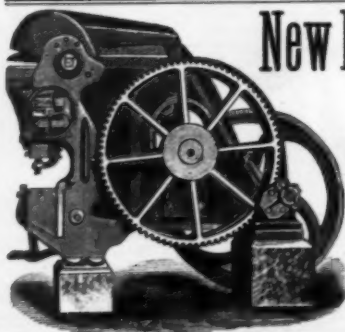
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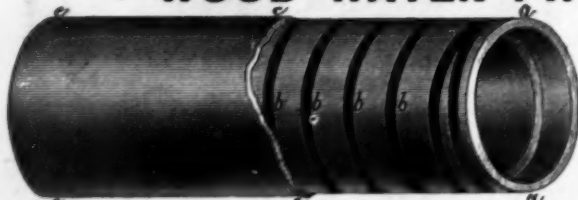
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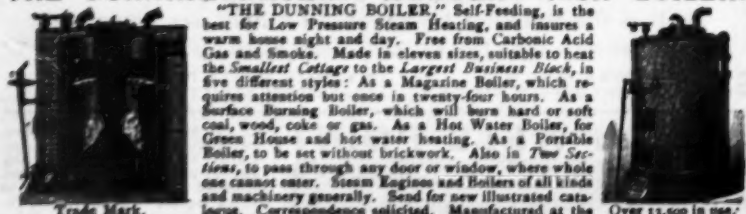


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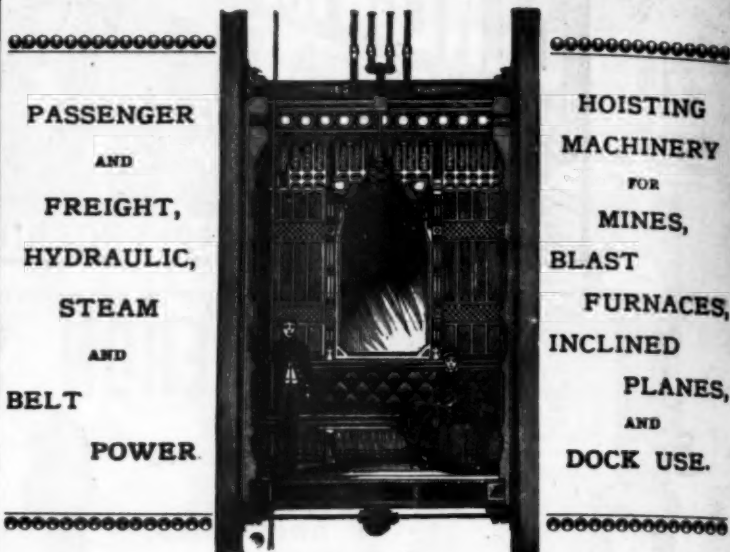
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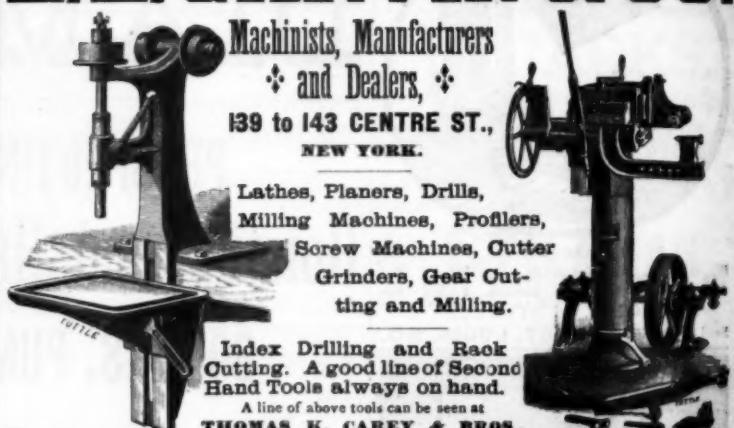
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